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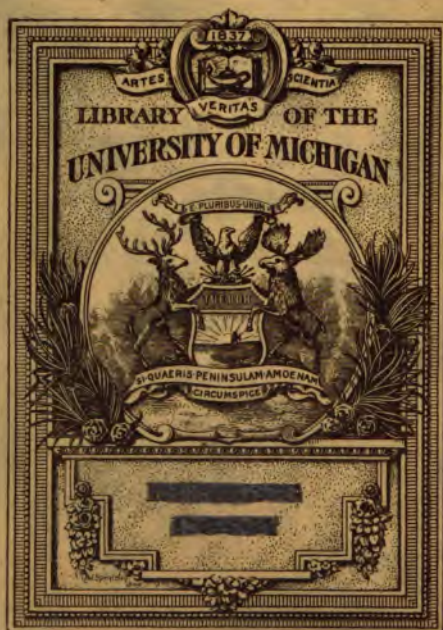
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SMOLEY'S  
PARALLEL TABLES  
*of* LOGARITHMS  
*and* SQUARES



NINTH EDITION



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# SMOLEY'S TABLES

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PARALLEL TABLES  
OF  
LOGARITHMS AND SQUARES  
DIAGRAMS FOR SOLVING RIGHT TRIANGLES  
ANGLES AND TRIGONOMETRIC FUNCTIONS  
CORRESPONDING TO GIVEN BEVELS  
COMMON LOGARITHMS OF NUMBERS  
TABLES OF LOGARITHMIC AND NATURAL  
TRIGONOMETRIC FUNCTIONS  
AND OTHER TABLES

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*For Engineers, Architects and Students*

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BY  
C. K. SMOLEY

*Principal, School of Civil Engineering, International Correspondence Schools  
Author of Parallel Tables of Slopes and Rises  
of the I. C. S. Civil Engineer's Handbook, etc.*

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NINTH EDITION, REVISED AND ENLARGED  
TOTAL ISSUE, TWENTY-SEVEN THOUSAND

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C. K. SMOLEY & SONS, PUBLISHERS  
SCRANTON, PA.

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1920

# TABLE OF CONTENTS

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## PART ONE

Table of 64th .....	0a-0d
Parallel Tables of Logs. and Squares.....	1-300
Diagrams for Solving Right Triangles.....	301-301k
Table of Bevels .....	302-327
Multiplication Table for Rivet Spacing.....	328-330
Multiplication Table for Spacing of Lattice Bars.....	331-339
Explanations and Examples .....	340-348

## PART TWO

Logarithms of Numbers .....	1-20
Log. Functions by $10''$ .....	21-27
Angles between $0^\circ$ and $1^\circ$ .....	28
Log. Functions by $1'$ .....	30-119
Natural Functions .....	120-149
Squares, Cubes, etc. ....	150-169
Lengths of Arc for Radius 1.....	170
Areas and Circumferences for Diameters in Units and Fractions .....	171-179
Formulas .....	180-181
Decimal Equivalents .....	182-183
Constants .....	184

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## PREFACE TO NINTH EDITION

91-8-213.7

The scope of Part One of this volume has been enlarged by the inclusion of a Multiplication Table for Spacing of Lattice Bars. This table will be found useful for laying out certain steel columns, bridge chords, and other structural members in which lattice-bar construction is used. The values in this table are given in intervals of  $1/8$  inch from 6 inches to 2 feet. For spacings less than 6 inches the Multiplication Table for Rivet Spacing may be used.

Part Two of this book has been increased by the addition of the following tables:

- (1) Lengths of Arcs for Radius 1.
- (2) Areas of Circles for Diameters in Units and Fractions.
- (3) Circumferences of Circles for Diameters in Units and Fractions.

Tables (2) and (3) run in parallel columns by intervals of  $1/32$  from 0 to 1, by intervals of  $1/16$  from 1 to 8, by intervals of  $1/8$  from 8 to 96, and by intervals of  $1/4$  from 96 to 100.

Besides the mentioned improvements, a special effort has been made to secure a particularly strong binding and for the first portion of the main tables an especially strong bond paper has been used. In addition, for the convenience of reference, certain parts have been transposed; namely, the table entitled Logarithms and Squares by Intervals of One Sixty-Fourth of an Inch has been placed in the front and the Explanations and Examples, at the back of Part One; also to be mentioned is the revision and extension of the Table of Constants Frequently Used in Calculations.

Since the eighth edition of this book was published, a new book of tables, by the same author, has appeared on the market. It is called Parallel Tables of Slopes and Rises, and contains Ready Solutions of Right Triangles for Given Bevels.

As this new book is essentially an extension of the Parallel Tables of Logarithms and Squares, many draftsmen will no doubt find it convenient to have both books in one volume. A combined edition containing both books in one volume has therefore been provided for. In this combined volume the portion of the Parallel Tables of Slopes and Rises containing reprints from the Logarithms and Squares has naturally been omitted.

THE AUTHOR.

711 Monroe Avenue, Scranton, Pa.  
January, 1920.

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# Preface to Fifth Edition.

This edition is a combination of the old set of tables of the previous edition, to which has been added a *multiplication table for rivet spacing*, with a new set of 5-decimal logarithmic-trigonometric tables, comprising the following separate tables:

1. Common logarithms of numbers from 0 to 10,000, with tables of proportional parts.
2. Logarithms of the sine and tang. from  $0^{\circ}$  to  $3^{\circ}$  and of the cosine and cotang. from  $87^{\circ}$  to  $90^{\circ}$ , varying by 10 seconds, with proportional parts for single seconds.
3. Logarithms of the sine, tang., cotang. and cosine for each minute of the quadrant, with proportional parts for seconds.
4. Natural functions.

Of these, the table of log. functions is, of course, the most important one, and special attention is called to its new arrangement, the advantage of which consists mainly in relieving the eye of the great mass of figures concentrated on the pages of the old arrangement; it also permits the use of larger type and clearer distribution of same.

With the inclusion of the new set of tables, this book not only completely covers the field of all classes of technical work,\* but it has become a *Universal Calculator*, being available for computations with the United States or English measures as well as with decimals (metric or feet).

While these new features of the book will appeal to students and such engineers and draftsmen as have a variety of computations to deal with, there will be many users whose special field of computations can be covered either with the "old" or the new set of tables alone, and this is the reason why these two sets of tables are published separately.

673 N. Claremont Ave.  
CHICAGO, January, 1908.

THE AUTHOR.

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\*Except, of course, where 7 decimal tables like Bruhn or Vega will be needed, but this will generally be the case when calculations exact to  $\frac{1}{16}$ " with dimensions between 50 and 100 feet and to  $\frac{1}{4}$ " with dimensions above 100 feet will be required.

## PREFACE TO THIRD EDITION.

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The success achieved by the previous editions of this work encouraged the author to undertake its extension to 100 feet. The extended part has, however, been tabulated by steps of  $\frac{1}{16}$ " instead of  $\frac{1}{32}$ " as the latter for lengths of over 50 feet would have little value, if any.

The computation and checking of the extended part has been carried out in the same careful manner as the old tables and it is therefore believed that it is as accurate as the old tables proved to be.

The parallel system of tabulation, *visa* the placing of the squares and logs. of the same numbers opposite each other, has been retained, this arrangement offering a number of advantages, namely: (1) The square and the log. of a number are often needed at the same time. (2) In many calculations the square of a number is given and its log. required or vice versa, the number itself being of no use to the calculator; the parallel arrangement of the tables enables in such cases the reading of the log. directly from its square or vice versa. (3) The log. of the square can be obtained by multiplying its corresponding log. item by 2.

In an article by Mr. F. D. Davis entitled: "Smoley's Tables; Some Convenient Methods by Their Use," published in the *Engineering News* of Dec. 25, 1902, Mr. Davis is discussing this special feature of these tables (*visa* their parallel arrangement) demonstrating the usefulness resulting from it by applying the tables to a number of examples relating mainly to mensuration. But in the opinion of the writer the parallel combination of the tables finds its most effective field of application in the solution of triangles for the purpose of figuring the data required for structural detail drawings. The most general problem we have here to deal with is this: With two given sides of a right-angle triangle, usually the main dimensions of the frame (as in a roof truss the half span and rise), to find: 1, the hypotenuse; 2, the bevel or slope; 3, the log. functions of the angles of the triangle, the latter for the purpose of figuring the diagonals of the frame, etc. Not only does the parallel combination of the tables enable the figuring of these three data in one process of calculation, but they are mutually checking

each other at the same time. In examples VI and VIII, pages 328 and 330, the hypotenuse, bevel, log tang. (visa the log. of the bevel) and log. sec. are obtained, the log. of any other function can be figured in the same manner as the log sec.

The Parallel combination of the logs. and squares is thus *dispensing with the use of trigonometrical tables* for all ordinary work of the structural draftsman, limiting their use to the rare cases where angles are given or required expressed in degrees, minutes, etc. The Table of Angles and Log Functions corresponding to given bevels, inserted in this edition, will in many such cases answer the purpose. The uses to which this table can be applied are manifold; a few more typical are here mentioned :

1. It offers an exact and rapid solution of a right-angle triangle when given by the bevel and one of its sides. When the bevel is a derived quantity and consequently approximate, the solution is also approximate, but sufficiently exact for many practical considerations.

2. The bevel or slope can directly be read from the angle expressed in degrees, minutes, etc., or vice versa.

3. The bevel can be obtained from the hypotenuse and one of the sides of the triangle without first figuring the other side by means of the table of squares. A few numerical examples showing the application of this table will be found on pages 302 and 303.

CONSTANTINE SMOLEY.

673 N. CLAREMONT AVE.

CHICAGO, ILL., MARCH, 1906.



## PREFACE TO FIRST EDITION.

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This work contains logarithms and squares of feet, inches and fractions thereof expressed in decimals of a foot and varying by  $\frac{1}{32}$  of an inch from zero to fifty feet. While this table of logarithms is published for the first time, there are already in use two tables of squares, one by Mr. Buchanan, and the other, a more recent work, by Mr. Hall, whose tables give squares varying by  $\frac{1}{16}$  of an inch, while the author's table enables the calculator to obtain results up to fifty feet in thirty-seconds of an inch without interpolation, which is a greater advantage than tables varying by  $\frac{1}{16}$  of an inch for lengths up to 100 feet. The number of cases where it is desirable to obtain results in thirty-seconds of an inch for the lengths less than fifty feet, by far exceed those cases where calculations are to be made with dimensions from 50 to 100 feet. In the latter cases the calculator can work with the dimensions divided by two and then by multiplying his results by two, still obtain them correct to  $\frac{1}{16}$  of an inch without interpolation. The distinctive feature of this work, however, is its new element—the table of logarithms. This opens up a wider field of application than the squares themselves, and the combination of both tables increases the value of each of them. It will be of special value to the structural draftsman, as the most frequent problems he has to deal with are handled by means of these tables with great saving of time and fewer chances of making errors, as can be seen from the examples shown at the end of this book.

One of the German philosophers has said that "Method is the soul of Philosophy," and it is equally true in a work of this kind that method gives value and insures reliability. As regards the table of squares, we give Mr. Buchanan full credit as pioneer in this field, but his method is primitive, and his work lacks accuracy, as has already been pointed out by Mr. Hall, whose method is entirely correct. But the author made use of a still different method, having the advantage over Mr. Hall's in being simpler, requiring less work, and making it easier to check. It is as follows :

Let  $a^2$  be the *first* item in any column in our table of squares,  $a$  being equal to any whole number of feet plus a whole number of inches expressed in decimals of a foot; let, further,  $b = \frac{1}{32}$ '' in

decimals of a foot and  $n$  denote any whole number between 0 and 32; any other item in the same column is then equal to  $(a+nb)^2$ , and the difference between any two consecutive items in that column can be expressed in the formula :

$$(a+nb)^2 - [a+(n-1)b]^2 = 2ab + (2n-1)b^2.$$

Now, if  $a^2$  is known, all the 32 items of the column can be obtained by consecutive additions to  $a^2$  of the constant for that column,  $2ab$ , and the 32 different values of  $(2n-1)b^2$ . As these latter 32 values are constant for all columns of the table of squares, we have figured them out, and printed them in rotation on blank forms, leaving between each two a space for the item itself, and at the top of every blank we have put its corresponding  $a^2$ . We also have put in the items for each  $\frac{1}{2}$ ". The value of  $2ab$  having been written on a slip of paper we place it over  $a^2$  and add it with  $a^2$  and the first printed value of  $(2n-1)b^2$  for  $n=1$ , and the first item is thus obtained; the slip is then moved down and added with the item just obtained and the second printed value of  $(2n-1)b^2$  for  $n=2$ , and so on; only one addition being thus required to obtain an item, and after every 16 additions we have to obtain the item previously put in the blanks — that is, the top and the middle items. The latter we worked out in a manner similar to that just described,  $a$  denoting any whole number of feet;  $b=\frac{1}{2}$ " in decimals of a foot, and  $n$ —any whole number between 0 and 24. It needed to be figured only to 12 feet, as after that the decimals repeat themselves. After the blanks were filled out, we compared every second item with those of Mr. Hall's tables, only three errors having been found in the latter. In order to discover any self-balancing error in the odd items, another table was calculated for the odd items and compared with the first results. The computation has been carried out to 7 decimals and reduced to 4; the first four pages to 11 and reduced to 6 decimals.

The computation of the table of logs. is based upon the formula :

$$\text{Log } \frac{a}{b} = \text{Log } a - \text{Log } b = \text{Log } a + \text{Colog } b.$$

Accordingly

$$\text{Log } (f+t) = \text{Log } \frac{12f+t}{12} = \text{Log } (12f+t) - \text{Log } 12 \dots\dots\dots(1)$$

$$\text{or} = \text{Log } (12f+t) + \text{Colog } 12 \dots\dots\dots(1a)$$

$$\begin{aligned} \text{also Log } (f+t''+\frac{t'''}{32}) &= \text{Log } \frac{12 \times 32 f + 32 t + t'''}{12 \times 32} \\ &= \text{Log } (12 \times 32 f + 32 t + t''') - \text{Log } 384 \dots\dots\dots(2) \\ \text{or} &= \text{Log } (12 \times 32 f + 32 t + t''') + \text{Colog } 384 \dots\dots\dots(2a) \end{aligned}$$

The log. of any item is thus equal to the log. of the number of 32nds contained in that item, *minus* the constant log. of the number 384 or *plus* its Colog. If  $N$  be this number of 32nds contained in any item,  $(N=12 \times 32f + 32i + t)$ , the difference between the logs. of two consecutive items equals

$$d = \text{Log.} \frac{N+1}{384} - \text{Log.} \frac{N}{384} = \text{Log.} (N+1) - \text{Log.} N$$

This difference can easily be taken from a standard logarithmic table.

The top items of all columns having been determined by formulæ (1) and (1a), they and the difference  $d$  having been put on blanks printed for this purpose, the work was then carried on by means of consecutive additions of the differences, after every 32 additions having had a check in the first item of the next column. Independently of this we figured the table of logs. by the formula (2a) that is, by taking in rotation the logs. of all numbers from 1 to 19200 and adding to each log. the colog. of 384—and compared both results, and, finally, we used the formula (2) for checking the electroplates.

Vega's 7 decimal log. tables have been used, and the computation carried out to 7 decimals and reduced to 5. In all cases where the last two figures of the 7 decimal Log. are 50, reference has been made to the "U. S. Coast and Geodetic Survey's" 10 decimal Log. tables.

On the last pages of this book will be found some explanations and examples showing the use of these tables. The former are intended for those who are not familiar with the use of Log. tables.

CONSTANTINE SMOLEY.

CLEVELAND, O., AUGUST, 1901.

DEGREES 32ds, etc.	0"		1"		2"		3"	
	Log.	Square.	Log.	Square.	Log.	Square.	Log.	Square.
0	—	.00000	8.92082	.00684	9.22125	.02778	9.29794	.06280
1	7.11484	.00000	8.92755	.00716	9.22528	.02821	9.40020	.06315
1/2	7.41867	.00001	8.93418	.00739	9.22885	.02865	9.40344	.06351
3	7.59176	.00002	8.94071	.00761	9.23191	.02910	9.40667	.06387
1/10	7.71670	.00003	8.94715	.00784	9.23521	.02954	9.40989	.06423
5	7.81381	.00004	8.95349	.00807	9.23849	.02999	9.40911	.06458
3/2	7.89279	.00006	8.95974	.00831	9.24174	.03044	9.41130	.06494
7	7.95974	.00008	8.96590	.00855	9.24497	.03090	9.41349	.06530
1/2	8.01773	.00011	8.97197	.00879	9.24818	.03136	9.41567	.06565
9	8.06888	.00014	8.97796	.00903	9.25136	.03182	9.41783	.06600
5/2	8.11444	.00017	8.98387	.00928	9.25452	.03229	9.41999	.06635
11	8.15603	.00021	8.98970	.00954	9.25765	.03276	9.42213	.06670
1/10	8.19328	.00024	8.99545	.00979	9.26077	.03323	9.42427	.06705
13	8.22858	.00029	9.00113	.01005	9.26386	.03371	9.42639	.06740
3/2	8.26077	.00033	9.00673	.01031	9.26693	.03419	9.42851	.06775
15	8.29073	.00038	9.01227	.01058	9.26997	.03467	9.43061	.06810
1/2	8.31876	.00043	9.01773	.01085	9.27300	.03515	9.43270	.06845
17	8.34509	.00049	9.02312	.01112	9.27601	.03565	9.43479	.06880
5/2	8.36991	.00055	9.02845	.01140	9.27899	.03614	9.43686	.06915
19	8.39339	.00061	9.03372	.01168	9.28196	.03664	9.43892	.06950
1/10	8.41567	.00068	9.03892	.01196	9.28490	.03714	9.44097	.06985
21	8.43686	.00075	9.04406	.01225	9.28783	.03764	9.44302	.07020
11/2	8.45706	.00082	9.04914	.01254	9.29073	.03815	9.44506	.07055
23	8.47637	.00090	9.05416	.01283	9.29362	.03866	9.44709	.07090
1/2	8.49485	.00098	9.05913	.01313	9.29648	.03917	9.44909	.07125
25	8.51258	.00106	9.06403	.01343	9.29933	.03969	9.45110	.07160
13/2	8.52961	.00115	9.06888	.01373	9.30216	.04021	9.45310	.07195
27	8.54600	.00124	9.07368	.01404	9.30497	.04073	9.45508	.07230
1/10	8.56180	.00132	9.07843	.01435	9.30776	.04126	9.45706	.07265
29	8.57704	.00143	9.08312	.01466	9.31054	.04179	9.45903	.07300
5/2	8.59176	.00155	9.08777	.01498	9.31329	.04232	9.46099	.07335
31	8.60600	.00163	9.09236	.01530	9.31604	.04286	9.46294	.07370
1/2	8.61979	.00174	9.09691	.01563	9.31876	.04340	9.46488	.07405
33	8.63315	.00185	9.10141	.01595	9.32146	.04395	9.46682	.07440
11/2	8.64612	.00196	9.10586	.01628	9.32415	.04449	9.46875	.07475
35	8.65871	.00208	9.11027	.01662	9.32683	.04505	9.47066	.07510
1/10	8.67094	.00220	9.11464	.01695	9.32948	.04560	9.47257	.07545
37	8.68284	.00232	9.11896	.01729	9.33212	.04616	9.47447	.07580
5/2	8.69442	.00245	9.12324	.01764	9.33475	.04672	9.47637	.07615
39	8.70570	.00258	9.12748	.01799	9.33736	.04728	9.47825	.07650
1/2	8.71670	.00271	9.13167	.01834	9.33995	.04785	9.48013	.07685
41	8.72742	.00285	9.13583	.01869	9.34253	.04842	9.48199	.07720
11/2	8.73789	.00299	9.13994	.01905	9.34509	.04899	9.48385	.07755
43	8.74811	.00313	9.14402	.01941	9.34763	.04956	9.48571	.07790
1/10	8.75809	.00328	9.14806	.01978	9.35017	.05013	9.48755	.07825
45	8.76785	.00343	9.15207	.02014	9.35268	.05070	9.48939	.07860
5/2	8.77740	.00359	9.15603	.02051	9.35519	.05128	9.49123	.07895
47	8.78674	.00375	9.15996	.02089	9.35768	.05186	9.49304	.07930
1/2	8.79588	.00391	9.16386	.02127	9.36015	.05244	9.49485	.07965
49	8.80483	.00407	9.16772	.02165	9.36261	.05312	9.49666	.07999
5/2	8.81361	.00424	9.17154	.02203	9.36506	.05372	9.49845	.08034
51	8.82221	.00441	9.17534	.02242	9.36749	.05432	9.50025	.08069
1/10	8.83064	.00458	9.17910	.02281	9.36991	.05493	9.50203	.08104
53	8.83891	.00476	9.18282	.02321	9.37232	.05554	9.50380	.08139
5/2	8.84703	.00494	9.18652	.02361	9.37471	.05616	9.50557	.08174
55	8.85500	.00513	9.19019	.02401	9.37709	.05678	9.50734	.08209
1/2	8.86283	.00532	9.19382	.02441	9.37946	.05740	9.50909	.08244
57	8.87051	.00551	9.19742	.02482	9.38181	.05803	9.51084	.08279
5/2	8.87807	.00570	9.20100	.02523	9.38415	.05865	9.51258	.08314
59	8.88549	.00590	9.20454	.02565	9.38648	.05929	9.51431	.08349
1/10	8.89279	.00610	9.20806	.02607	9.38880	.05992	9.51604	.08384
61	8.89997	.00631	9.21155	.02649	9.39110	.06056	9.51776	.08419
11/2	8.90703	.00652	9.21501	.02692	9.39339	.06120	9.51947	.08454
63	8.91398	.00673	9.21844	.02735	9.39567	.06185	9.52118	.08489

64ths. 32ds, etc.	4"		5"		6"		7"	
	Log.	Square.	Log.	Square.	Log.	Square.	Log.	Square.
0	9.53238	.11111	9.61979	.17361	9.68897	.25000	9.76892	.34028
1	9.53247	.11198	9.62114	.17470	9.70010	.25130	9.76889	.34180
1 1/2	9.53266	.11285	9.62249	.17579	9.70123	.25261	9.76886	.34332
3	9.52794	.11373	9.62384	.17688	9.70235	.25392	9.76883	.34485
3 1/2	9.53961	.11461	9.62518	.17798	9.70347	.25524	9.76978	.34638
5	9.53128	.11549	9.62652	.17908	9.70459	.25655	9.77074	.34792
5 1/2	9.53294	.11638	9.62786	.18018	9.70570	.25787	9.77169	.34945
7	9.53459	.11727	9.62919	.18129	9.70682	.25920	9.77265	.35099
7 1/2	9.53624	.11816	9.63051	.18240	9.70793	.26053	9.77360	.35254
9	9.53788	.11906	9.63183	.18351	9.70903	.26186	9.77456	.35409
9 1/2	9.53953	.11996	9.63315	.18463	9.71014	.26319	9.77551	.35564
11	9.54115	.12086	9.63447	.18575	9.71124	.26453	9.77646	.35719
11 1/2	9.54277	.12177	9.63578	.18688	9.71235	.26587	9.77740	.35875
13	9.54439	.12268	9.63708	.18800	9.71345	.26721	9.77834	.36031
13 1/2	9.54600	.12360	9.63839	.18913	9.71456	.26856	9.77928	.36188
15	9.54761	.12451	9.63968	.19027	9.71561	.26991	9.78023	.36345
15 1/2	9.54921	.12543	9.64098	.19141	9.71670	.27127	9.78116	.36502
17	9.55080	.12636	9.64227	.19255	9.71778	.27263	9.78209	.36659
17 1/2	9.55239	.12730	9.64356	.19369	9.71886	.27399	9.78302	.36817
19	9.55397	.12822	9.64484	.19484	9.71994	.27535	9.78396	.36975
19 1/2	9.55555	.12915	9.64612	.19599	9.72102	.27672	9.78489	.37134
21	9.55712	.13009	9.64739	.19715	9.72209	.27809	9.78581	.37293
21 1/2	9.55868	.13103	9.64866	.19830	9.72316	.27947	9.78674	.37453
23	9.56024	.13197	9.64993	.19946	9.72423	.28084	9.78766	.37611
23 1/2	9.56180	.13292	9.65120	.20063	9.72530	.28223	9.78858	.37771
25	9.56335	.13387	9.65246	.20180	9.72636	.28361	9.78950	.37931
25 1/2	9.56489	.13483	9.65371	.20297	9.72743	.28500	9.79043	.38092
27	9.56643	.13578	9.65497	.20414	9.72848	.28639	9.79138	.38253
27 1/2	9.56796	.13675	9.65622	.20532	9.72954	.28779	9.79235	.38414
29	9.56948	.13771	9.65746	.20650	9.73059	.28919	9.79331	.38576
29 1/2	9.57100	.13868	9.65871	.20769	9.73164	.29059	9.79427	.38738
31	9.57252	.13965	9.65995	.20888	9.73269	.29199	9.79523	.38900
31 1/2	9.57403	.14063	9.66118	.21007	9.73373	.29340	9.79618	.39062
33	9.57554	.14160	9.66241	.21126	9.73477	.29482	9.79713	.39225
33 1/2	9.57704	.14258	9.66364	.21246	9.73581	.29623	9.79808	.39388
35	9.57853	.14357	9.66487	.21367	9.73685	.29765	9.79903	.39552
35 1/2	9.58002	.14456	9.66609	.21487	9.73789	.29907	9.79998	.39716
37	9.58151	.14555	9.66731	.21608	9.73892	.30050	9.80093	.39881
37 1/2	9.58299	.14655	9.66852	.21729	9.73995	.30193	9.80188	.40046
39	9.58446	.14754	9.66973	.21851	9.74098	.30336	9.80283	.40210
39 1/2	9.58593	.14855	9.67094	.21973	9.74200	.30480	9.80378	.40375
41	9.58740	.14955	9.67215	.22095	9.74303	.30624	9.80473	.40541
41 1/2	9.58886	.15056	9.67336	.22217	9.74406	.30768	9.80568	.40707
43	9.59031	.15157	9.67455	.22340	9.74507	.30912	9.80663	.40873
43 1/2	9.59176	.15259	9.67574	.22464	9.74608	.31057	9.80758	.41040
45	9.59321	.15360	9.67693	.22587	9.74710	.31203	9.80853	.41207
45 1/2	9.59465	.15463	9.67812	.22711	9.74811	.31348	9.80948	.41374
47	9.59608	.15565	9.67930	.22835	9.74912	.31494	9.81043	.41542
47 1/2	9.59751	.15668	9.68049	.22960	9.75013	.31641	9.81138	.41710
49	9.59894	.15772	9.68167	.23085	9.75113	.31787	9.81233	.41878
49 1/2	9.60036	.15875	9.68284	.23210	9.75213	.31934	9.81328	.42047
51	9.60178	.15979	9.68401	.23336	9.75313	.32082	9.81423	.42216
51 1/2	9.60319	.16083	9.68518	.23463	9.75413	.32230	9.81518	.42386
53	9.60460	.16188	9.68635	.23588	9.75512	.32377	9.81613	.42555
53 1/2	9.60600	.16293	9.68751	.23715	9.75611	.32526	9.81708	.42725
55	9.60740	.16398	9.68867	.23842	9.75710	.32674	9.81803	.42896
55 1/2	9.60879	.16504	9.68983	.23969	9.75809	.32823	9.81898	.43066
57	9.61018	.16610	9.69098	.24097	9.75908	.32973	9.81993	.43237
57 1/2	9.61157	.16716	9.69213	.24225	9.76006	.33122	9.82088	.43407
59	9.61295	.16823	9.69328	.24353	9.76104	.33272	9.82183	.43581
59 1/2	9.61433	.16930	9.69443	.24482	9.76202	.33423	9.82278	.43753
61	9.61570	.17037	9.69558	.24611	9.76300	.33574	9.82373	.43925
61 1/2	9.61707	.17145	9.69673	.24740	9.76397	.33725	9.82468	.44098
63	9.61843	.17253	9.69788	.24870	9.76495	.33876	9.82563	.44271

64ths. 32nds, etc.	8"		9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.	Log.	Square.
0	9.83391	.44444	9.87506	.62520	9.92083	.69444	9.96321	.84023
1	9.832476	.44618	9.87581	.62645	9.92150	.69662	9.96283	.84267
1/2	9.83160	.44792	9.87657	.62761	9.92217	.69879	9.96244	.84506
3	9.83045	.44967	9.87732	.62887	9.92285	.70097	9.96206	.84745
1/4	9.82979	.45143	9.87807	.63014	9.92352	.70315	9.96167	.84985
5	9.82813	.45317	9.87881	.63141	9.92420	.70534	9.96129	.85226
3/4	9.82697	.45493	9.87956	.63268	9.92487	.70753	9.96090	.85466
7	9.82581	.45668	9.88031	.63395	9.92554	.70972	9.96051	.85707
1/2	9.82504	.45844	9.88106	.63523	9.92621	.71191	9.96012	.85948
9	9.82348	.46021	9.88179	.63650	9.92688	.71411	9.95973	.86189
5/4	9.82231	.46198	9.88254	.63778	9.92755	.71632	9.95934	.86432
11	9.82314	.46375	9.88328	.63905	9.92822	.71853	9.95895	.86674
1/4	9.82197	.46553	9.88403	.64033	9.92889	.72073	9.95856	.86917
13	9.82080	.46730	9.88478	.64160	9.92956	.72294	9.95817	.87160
3/4	9.81963	.46908	9.88553	.64288	9.93023	.72516	9.95778	.87403
15	9.81846	.47087	9.88628	.64415	9.93090	.72738	9.95739	.87647
1/2	9.81729	.47266	9.88703	.64543	9.93157	.72959	9.95700	.87891
17	9.81612	.47445	9.88778	.64670	9.93224	.73183	9.95661	.88135
5/4	9.81495	.47624	9.88853	.64798	9.93291	.73406	9.95622	.88379
19	9.81378	.47804	9.88928	.64925	9.93358	.73629	9.95583	.88623
1/4	9.81261	.47984	9.89003	.65053	9.93425	.73853	9.95544	.88867
21	9.81144	.48165	9.89078	.65180	9.93492	.74077	9.95505	.89111
3/4	9.81027	.48346	9.89153	.65308	9.93559	.74301	9.95466	.89355
23	9.80910	.48527	9.89228	.65435	9.93626	.74525	9.95427	.89600
1/2	9.80793	.48709	9.89303	.65563	9.93693	.74750	9.95388	.89844
25	9.80676	.48891	9.89378	.65690	9.93760	.74976	9.95349	.90089
5/4	9.80559	.49073	9.89453	.65818	9.93827	.75201	9.95310	.90333
27	9.80442	.49256	9.89528	.65945	9.93894	.75427	9.95271	.90578
1/4	9.80325	.49438	9.89603	.66073	9.93961	.75654	9.95232	.90823
29	9.80208	.49622	9.89678	.66200	9.94028	.75880	9.95193	.91068
3/4	9.80091	.49806	9.89753	.66328	9.94095	.76107	9.95154	.91313
31	9.80004	.49989	9.89828	.66456	9.94162	.76335	9.95115	.91558
1/2	9.80004	.50174	9.89903	.66584	9.94229	.76563	9.95076	.91803
33	9.80004	.50358	9.89978	.66712	9.94296	.76791	9.95037	.92048
5/4	9.80004	.50543	9.89997	.66840	9.94363	.77019	9.95000	.92293
35	9.80004	.50729	9.90068	.66968	9.94430	.77248	9.94961	.92538
1/4	9.80004	.50914	9.90139	.67096	9.94497	.77477	9.94922	.92783
37	9.80004	.51100	9.90210	.67224	9.94564	.77706	9.94883	.93028
3/4	9.80004	.51286	9.90281	.67352	9.94631	.77935	9.94844	.93273
39	9.80004	.51473	9.90351	.67480	9.94698	.78166	9.94805	.93518
1/2	9.80004	.51660	9.90422	.67608	9.94765	.78396	9.94766	.93763
41	9.80004	.51848	9.90492	.67736	9.94832	.78627	9.94727	.94008
5/4	9.80004	.52035	9.90563	.67864	9.94899	.78858	9.94688	.94253
43	9.80004	.52223	9.90633	.67992	9.94966	.79090	9.94649	.94500
1/4	9.80004	.52411	9.90703	.68120	9.95033	.79321	9.94610	.94745
45	9.80004	.52600	9.90773	.68248	9.95100	.79553	9.94571	.94990
3/4	9.80004	.52789	9.90844	.68376	9.95167	.79786	9.94532	.95235
47	9.80004	.52979	9.90913	.68504	9.95234	.80019	9.94493	.95480
1/2	9.80004	.53168	9.90983	.68632	9.95301	.80252	9.94454	.95725
49	9.80004	.53358	9.91053	.68760	9.95368	.80485	9.94415	.95970
5/4	9.80004	.53548	9.91123	.68888	9.95435	.80719	9.94376	.96215
51	9.80004	.53738	9.91193	.69016	9.95502	.80952	9.94337	.96460
1/4	9.80004	.53928	9.91263	.69144	9.95569	.81185	9.94298	.96705
53	9.80004	.54118	9.91333	.69272	9.95636	.81418	9.94259	.96950
3/4	9.80004	.54308	9.91403	.69400	9.95703	.81651	9.94220	.97195
55	9.80004	.54500	9.91473	.69528	9.95770	.81884	9.94181	.97440
1/2	9.80004	.54690	9.91543	.69656	9.95837	.82117	9.94142	.97685
57	9.80004	.54881	9.91613	.69784	9.95904	.82350	9.94103	.97930
5/4	9.80004	.55072	9.91683	.69912	9.95971	.82583	9.94064	.98175
59	9.80004	.55263	9.91753	.70040	9.96038	.82816	9.94025	.98420
1/4	9.80004	.55454	9.91823	.70168	9.96105	.83049	9.93986	.98665
61	9.80004	.55645	9.91893	.70296	9.96172	.83282	9.93947	.98910
3/4	9.80004	.55836	9.91963	.70424	9.96239	.83515	9.93908	.99155
63	9.80004	.56027	9.92033	.70552	9.96306	.83748	9.93869	.99400
1/2	9.80004	.56218	9.92103	.70680	9.96373	.83981	9.93830	.99645
65	9.80004	.56409	9.92173	.70808	9.96440	.84214	9.93791	.99890
5/4	9.80004	.56600	9.92243	.70936	9.96507	.84447	9.93752	.10135
67	9.80004	.56791	9.92313	.71064	9.96574	.84680	9.93713	.10380
3/4	9.80004	.56982	9.92383	.71192	9.96641	.84913	9.93674	.10625
69	9.80004	.57173	9.92453	.71320	9.96708	.85146	9.93635	.10870
1/4	9.80004	.57364	9.92523	.71448	9.96775	.85379	9.93596	.11115
71	9.80004	.57555	9.92593	.71576	9.96842	.85612	9.93557	.11360
5/4	9.80004	.57746	9.92663	.71704	9.96909	.85845	9.93518	.11605
73	9.80004	.57937	9.92733	.71832	9.96976	.86078	9.93479	.11850
3/4	9.80004	.58128	9.92803	.71960	9.97043	.86311	9.93440	.12095
75	9.80004	.58319	9.92873	.72088	9.97110	.86544	9.93401	.12340
1/2	9.80004	.58510	9.92943	.72216	9.97177	.86777	9.93362	.12585
77	9.80004	.58701	9.93013	.72344	9.97244	.87010	9.93323	.12830
5/4	9.80004	.58892	9.93083	.72472	9.97311	.87243	9.93284	.13075
79	9.80004	.59083	9.93153	.72600	9.97378	.87476	9.93245	.13320
1/4	9.80004	.59274	9.93223	.72728	9.97445	.87709	9.93206	.13565
81	9.80004	.59465	9.93293	.72856	9.97512	.87942	9.93167	.13810
3/4	9.80004	.59656	9.93363	.72984	9.97579	.88175	9.93128	.14055
83	9.80004	.59847	9.93433	.73112	9.97646	.88408	9.93089	.14300
1/2	9.80004	.59998	9.93503	.73240	9.97713	.88641	9.93050	.14545
85	9.80004	.60189	9.93573	.73368	9.97780	.88874	9.93011	.14790
5/4	9.80004	.60380	9.93643	.73496	9.97847	.89107	9.92972	.15035
87	9.80004	.60571	9.93713	.73624	9.97914	.89340	9.92933	.15280
3/4	9.80004	.60762	9.93783	.73752	9.97981	.89573	9.92894	.15525
89	9.80004	.60953	9.93853	.73880	9.98048	.89806	9.92855	.15770
1/4	9.80004	.61144	9.93923	.74008	9.98115	.90039	9.92816	.16015
91	9.80004	.61335	9.93993	.74136	9.98182	.90272	9.92777	.16260
5/4	9.80004	.61526	9.94063	.74264	9.98249	.90505	9.92738	.16505
93	9.80004	.61717	9.94133	.74392	9.98316	.90738	9.92699	.16750
3/4	9.80004	.61908	9.94203	.74520	9.98383	.90971	9.92660	.16995
95	9.80004	.62099	9.94273	.74648	9.98450	.91204	9.92621	.17240
1/2	9.80004	.62290	9.94343	.74776	9.98517	.91437	9.92582	.17485
97	9.80004	.62481	9.94413	.74904	9.98584	.91670	9.92543	.17730
5/4	9.80004	.62672	9.94483	.75032	9.98651	.91903	9.92504	.17975
99	9.80004	.62863	9.94553	.75160	9.98718	.92136	9.92465	.18220
1/4	9.80004	.63054	9.94623	.75288	9.98785	.92369	9.92426	.18465
101	9.80004	.63245	9.94693	.75416	9.98852	.92602	9.92387	.18710
3/4	9.80004	.63436	9.94763	.75544	9.98919	.92835	9.92348	.18955
103	9.80004	.63627	9.94833	.75672	9.98986	.93068	9.92309	.19200
5/4	9.80004	.63818	9.94903	.75800	9.99053	.93301	9.92270	.19445
105	9.80004	.64009	9.94973	.75928	9.99120	.93534	9.92231	.19690
3/4	9.80004	.64200	9.95043	.76056	9.99187	.93767	9.92192	.19935
107	9.80004	.64391	9.95113	.76184	9.99254	.94000	9.92153	.20180
1/2	9.80004	.64582	9.95183	.76312	9.99321	.94233	9.92114	.20425
109	9.80004	.64773	9.95253	.76440	9.99388	.94466	9.92075	.20670
5/4	9.80004	.64964	9.95323	.76568	9.99455	.94699	9.92036	.20915
111	9.80004	.65155	9.95393	.76696	9.99522	.94932	9.92000	.21160
3/4	9.80004	.65346	9.95463	.76824	9.99589	.95165	9.91961	.21405
113	9.80004	.65537	9.95533	.76952	9.99656	.95398	9.91922	.21650
5/4	9.80004	.65728	9.95603	.77080	9.99723	.95631	9.91883	.21895
115	9.80004	.65919	9.95673	.77208	9.99790	.95864	9.91844	.22140
3/4	9.80004	.66110	9.95743	.77336	9.99857	.96097	9.91805	.22385
117	9.80004	.66301	9.95813	.77464	9.99924	.96330	9.91766	.22630
1/2	9.80004	.66492	9.95883	.77592	9.99991	.96563	9.91727	.22875
119	9.80004	.66683	9.95953	.77720	9.99999	.96796	9.91688	.23120
5/4	9.80004	.6687						

64ths. 32ds, etc.	12"		13"		14"		15"	
	Log.	Square.	Log.	Square.	Log.	Square.	Log.	Square.
0	.00000	1.0000	.03476	1.1786	.06995	1.3611	.09991	1.5625
1	.00057	1.0026	.03528	1.1764	.06743	1.3642	.09736	1.5658
2	.00114	1.0052	.03580	1.1743	.06492	1.3673	.09481	1.5690
3	.00169	1.0078	.03633	1.1721	.06240	1.3702	.09227	1.5723
4	.00226	1.0104	.03685	1.1699	.05989	1.3733	.08972	1.5755
5	.00282	1.0131	.03736	1.1878	.05736	1.3763	.08717	1.5788
6	.00338	1.0157	.03788	1.1904	.05485	1.3794	.08462	1.5821
7	.00394	1.0183	.03840	1.1934	.05233	1.3825	.08207	1.5854
8	.00450	1.0209	.03892	1.1963	.04981	1.3855	.07951	1.5887
9	.00506	1.0236	.03944	1.1991	.04729	1.3886	.07696	1.5919
10	.00562	1.0262	.03996	1.2020	.04477	1.3917	.07441	1.5952
11	.00618	1.0289	.04047	1.2048	.04225	1.3947	.07186	1.5985
12	.00673	1.0315	.04098	1.2077	.03972	1.3978	.06931	1.6018
13	.00729	1.0341	.04150	1.2106	.03720	1.4009	.06676	1.6051
14	.00785	1.0368	.04201	1.2134	.03468	1.4040	.06421	1.6084
15	.00840	1.0394	.04252	1.2163	.03216	1.4071	.06166	1.6117
16	.00895	1.0421	.04303	1.2192	.02964	1.4102	.05911	1.6150
17	.00951	1.0448	.04355	1.2221	.02712	1.4133	.05656	1.6183
18	.01006	1.0474	.04406	1.2249	.02460	1.4163	.05401	1.6216
19	.01061	1.0501	.04457	1.2278	.02208	1.4194	.05146	1.6250
20	.01116	1.0528	.04508	1.2307	.01956	1.4225	.04891	1.6283
21	.01172	1.0554	.04559	1.2336	.01704	1.4257	.04636	1.6316
22	.01227	1.0581	.04610	1.2365	.01452	1.4288	.04381	1.6349
23	.01283	1.0608	.04660	1.2394	.01200	1.4319	.04126	1.6383
24	.01338	1.0635	.04711	1.2423	.00948	1.4350	.03871	1.6416
25	.01391	1.0662	.04762	1.2452	.00696	1.4381	.03616	1.6449
26	.01446	1.0688	.04813	1.2481	.00444	1.4412	.03361	1.6483
27	.01501	1.0715	.04863	1.2510	.00192	1.4444	.03106	1.6516
28	.01555	1.0742	.04914	1.2539	.00000	1.4475	.02851	1.6550
29	.01610	1.0769	.04964	1.2568	.00000	1.4506	.02596	1.6583
30	.01664	1.0797	.05015	1.2598	.00000	1.4537	.02341	1.6617
31	.01719	1.0824	.05065	1.2627	.00000	1.4568	.02086	1.6650
32	.01773	1.0851	.05115	1.2656	.00000	1.4599	.01831	1.6684
33	.01827	1.0878	.05165	1.2685	.00000	1.4630	.01576	1.6718
34	.01881	1.0905	.05216	1.2715	.00000	1.4661	.01321	1.6751
35	.01935	1.0932	.05266	1.2744	.00000	1.4692	.01066	1.6785
36	.01989	1.0959	.05316	1.2774	.00000	1.4723	.00811	1.6819
37	.02043	1.0987	.05366	1.2803	.00000	1.4754	.00556	1.6853
38	.02097	1.1014	.05416	1.2833	.00000	1.4785	.00301	1.6887
39	.02151	1.1041	.05466	1.2862	.00000	1.4816	.00046	1.6920
40	.02205	1.1069	.05516	1.2893	.00000	1.4847	.00000	1.6954
41	.02259	1.1096	.05565	1.2921	.00000	1.4878	.00000	1.6988
42	.02312	1.1124	.05615	1.2951	.00000	1.4909	.00000	1.7023
43	.02366	1.1151	.05665	1.2981	.00000	1.4940	.00000	1.7056
44	.02419	1.1179	.05714	1.3010	.00000	1.4971	.00000	1.7090
45	.02473	1.1206	.05764	1.3040	.00000	1.5002	.00000	1.7124
46	.02526	1.1234	.05813	1.3070	.00000	1.5033	.00000	1.7158
47	.02580	1.1261	.05863	1.3100	.00000	1.5064	.00000	1.7192
48	.02633	1.1289	.05912	1.3129	.00000	1.5095	.00000	1.7227
49	.02686	1.1317	.05961	1.3159	.00000	1.5126	.00000	1.7261
50	.02739	1.1344	.06011	1.3189	.00000	1.5157	.00000	1.7295
51	.02792	1.1372	.06060	1.3219	.00000	1.5188	.00000	1.7329
52	.02845	1.1400	.06109	1.3249	.00000	1.5219	.00000	1.7364
53	.02898	1.1428	.06158	1.3279	.00000	1.5250	.00000	1.7398
54	.02951	1.1456	.06207	1.3309	.00000	1.5281	.00000	1.7433
55	.03004	1.1484	.06256	1.3339	.00000	1.5312	.00000	1.7467
56	.03057	1.1512	.06305	1.3369	.00000	1.5343	.00000	1.7501
57	.03109	1.1539	.06354	1.3399	.00000	1.5374	.00000	1.7536
58	.03162	1.1567	.06403	1.3429	.00000	1.5405	.00000	1.7570
59	.03214	1.1595	.06452	1.3460	.00000	1.5436	.00000	1.7605
60	.03267	1.1624	.06500	1.3490	.00000	1.5467	.00000	1.7639
61	.03319	1.1652	.06549	1.3520	.00000	1.5498	.00000	1.7674
62	.03372	1.1680	.06598	1.3550	.00000	1.5529	.00000	1.7708
63	.03424	1.1708	.06646	1.3581	.00000	1.5560	.00000	1.7743



# LOGARITHMS AND SQUARES

BY INTERVALS OF

## ONE-SIXTY-FOURTH OF AN INCH

From experience it is known that by far the greater majority of problems for which this book is used deal with comparatively small dimensions. Thus it has invariably been found that the first portion of the main tables wears out much quicker than the other parts of the book, and it is for this reason that the following 32 pages have been printed on extra heavy and strong bond paper; but, in addition, since in dealing with small dimensions greater than ordinary accuracy is sometimes required, the foregoing table giving logarithms and squares by intervals of  $1/64$  inch is provided. Not only can results correct to  $1/64$  inch be derived by means of this table, but its special arrangement giving the 64ths in Roman and the 32ds in bold-face type enables the user to determine at a glance the nearest thirty-second of an inch.

It might be well to mention here that the charts containing Graphic Solutions of Right Triangles, given elsewhere in this book, provide another means of solving many of the problems dealing with small dimensions. These charts were drawn with great precision and are absolutely dependable. Inasmuch as by their means results can be obtained almost at a glance, they have proved to be great time savers and are strongly recommended for use where reliable and rapid results are desired.

## **PARALLEL TABLES**

**OF**

## **LOGARITHMS AND SQUARES**

**Of feet, inches, and fractions of inches, varying by one  
thirty-second of an inch from zero to fifty feet, and  
by one-sixteenth of an inch from fifty to  
one hundred feet.**

0'

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	—	0.000000	8.92082	0.006944	9.22185	0.027778
$\frac{1}{32}$	7.41567	0.000007	8.93418	0.007385	9.22858	0.028653
$\frac{1}{16}$	7.71670	0.000027	8.94715	0.007840	9.23521	0.029541
$\frac{3}{32}$	7.89279	0.000061	8.95974	0.008308	9.24174	0.030443
$\frac{1}{8}$	8.01773	0.000109	8.97197	0.008789	9.24818	0.031359
$\frac{5}{32}$	8.11464	0.000170	8.98387	0.009284	9.25452	0.032288
$\frac{3}{16}$	8.19382	0.000244	8.99545	0.009793	9.26077	0.033230
$\frac{7}{32}$	8.26077	0.000332	9.00673	0.010315	9.26693	0.034186
$\frac{1}{4}$	8.31876	0.000434	9.01773	0.010851	9.27300	0.035156
$\frac{9}{32}$	8.36991	0.000549	9.02845	0.011400	9.27899	0.036140
$\frac{5}{16}$	8.41567	0.000678	9.03892	0.011963	9.28490	0.037137
$\frac{11}{32}$	8.45706	0.000821	9.04914	0.012539	9.29073	0.038147
$\frac{3}{8}$	8.49485	0.000977	9.05912	0.013129	9.29648	0.039171
$\frac{13}{32}$	8.52961	0.001146	9.06888	0.013733	9.30216	0.040209
$\frac{7}{16}$	8.56180	0.001329	9.07843	0.014350	9.30776	0.041260
$\frac{15}{32}$	8.59176	0.001526	9.08777	0.014981	9.31330	0.042324
$\frac{1}{2}$	8.61979	0.001736	9.09691	0.015625	9.31876	0.043403
$\frac{17}{32}$	8.64612	0.001960	9.10586	0.016283	9.32415	0.044495
$\frac{9}{16}$	8.67094	0.002197	9.11464	0.016954	9.32948	0.045600
$\frac{19}{32}$	8.69442	0.002448	9.12324	0.017639	9.33475	0.046719
$\frac{5}{8}$	8.71670	0.002713	9.13167	0.018338	9.33995	0.047852
$\frac{21}{32}$	8.73789	0.002991	9.13994	0.019050	9.34509	0.048998
$\frac{11}{16}$	8.75809	0.003282	9.14806	0.019775	9.35017	0.050157
$\frac{23}{32}$	8.77740	0.003588	9.15603	0.020515	9.35519	0.051331
$\frac{3}{4}$	8.79588	0.003906	9.16386	0.021267	9.36015	0.052517
$\frac{25}{32}$	8.81361	0.004239	9.17154	0.022034	9.36506	0.053718
$\frac{13}{16}$	8.83034	0.004584	9.17910	0.022814	9.36991	0.054932
$\frac{27}{32}$	8.84703	0.004944	9.18652	0.023607	9.37471	0.056159
$\frac{7}{8}$	8.86283	0.005317	9.19382	0.024414	9.37946	0.057400
$\frac{29}{32}$	8.87807	0.005703	9.20100	0.025235	9.38415	0.058655
$\frac{15}{16}$	8.89279	0.006104	9.20806	0.026069	9.38880	0.059923
$\frac{31}{32}$	8.90703	0.006517	9.21501	0.026917	9.39339	0.061205
1	8.92082	0.006944	9.22185	0.027778	9.39794	0.062500

0'

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	9.39794	0.062500	9.52288	0.111111	9.61979	0.173611
$\frac{1}{64}$	9.40244	0.063909	9.52626	0.112854	9.62249	0.175788
$\frac{1}{32}$	9.40689	0.065131	9.52961	0.114610	9.62518	0.177979
$\frac{3}{64}$	9.41130	0.066467	9.53294	0.116380	9.62786	0.180183
$\frac{1}{16}$	9.41567	0.067817	9.53624	0.118164	9.63051	0.182400
$\frac{5}{64}$	9.41999	0.069180	9.53952	0.119961	9.63315	0.184631
$\frac{3}{32}$	9.42427	0.070557	9.54277	0.121772	9.63578	0.186876
$\frac{1}{8}$	9.42851	0.071947	9.54600	0.123596	9.63839	0.189134
$\frac{1}{4}$	9.43270	0.073351	9.54921	0.125434	9.64098	0.191406
$\frac{5}{32}$	9.43686	0.074768	9.55239	0.127285	9.64356	0.193692
$\frac{3}{16}$	9.44097	0.076199	9.55555	0.129150	9.64612	0.195991
$\frac{11}{64}$	9.44505	0.077644	9.55868	0.131029	9.64866	0.198303
$\frac{3}{8}$	9.44909	0.079102	9.56180	0.132921	9.65120	0.200629
$\frac{13}{64}$	9.45310	0.080573	9.56489	0.134827	9.65371	0.202969
$\frac{7}{32}$	9.45708	0.082058	9.56796	0.136746	9.65622	0.205322
$\frac{1}{2}$	9.46099	0.083557	9.57100	0.138679	9.65871	0.207689
$\frac{5}{16}$	9.46489	0.085069	9.57403	0.140625	9.66118	0.210069
$\frac{17}{64}$	9.46875	0.086595	9.57704	0.142585	9.66364	0.212463
$\frac{9}{32}$	9.47257	0.088135	9.58002	0.144558	9.66609	0.214871
$\frac{19}{64}$	9.47637	0.089688	9.58299	0.146545	9.66852	0.217292
$\frac{3}{4}$	9.48013	0.091254	9.58593	0.148546	9.67094	0.219727
$\frac{21}{64}$	9.48385	0.092834	9.58886	0.150560	9.67335	0.222175
$\frac{11}{32}$	9.48755	0.094428	9.59176	0.152588	9.67574	0.224637
$\frac{23}{64}$	9.49122	0.096035	9.59465	0.154629	9.67812	0.227112
$\frac{5}{8}$	9.49485	0.097656	9.59751	0.156684	9.68049	0.229601
$\frac{25}{64}$	9.49845	0.099291	9.60036	0.158752	9.68284	0.232103
$\frac{13}{32}$	9.50203	0.100939	9.60319	0.160834	9.68518	0.234619
$\frac{27}{64}$	9.50557	0.102600	9.60600	0.162930	9.68751	0.237149
$\frac{3}{2}$	9.50909	0.104275	9.60879	0.165039	9.68983	0.239692
$\frac{29}{64}$	9.51258	0.105964	9.61157	0.167162	9.69213	0.242249
$\frac{15}{32}$	9.51604	0.107668	9.61433	0.169298	9.69442	0.244819
$\frac{31}{64}$	9.51947	0.109382	9.61707	0.171448	9.69670	0.247403
1	9.52288	0.111111	9.61979	0.173611	9.69897	0.250000

0'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	9.69897	0.250000	9.76592	0.340278	9.82391	0.444444
$\frac{1}{32}$	9.70123	0.252611	9.76785	0.343323	9.82560	0.447923
$\frac{1}{16}$	9.70347	0.255235	9.76978	0.346381	9.82729	0.451416
$\frac{3}{32}$	9.70570	0.257874	9.77169	0.349453	9.82897	0.454922
$\frac{1}{8}$	9.70792	0.260525	9.77360	0.352539	9.83064	0.458442
$\frac{5}{32}$	9.71014	0.263190	9.77550	0.355638	9.83231	0.461975
$\frac{3}{16}$	9.71233	0.265869	9.77740	0.358751	9.83397	0.465522
$\frac{7}{32}$	9.71452	0.268561	9.77928	0.361877	9.83562	0.469082
$\frac{1}{4}$	9.71670	0.271267	9.78116	0.365017	9.83727	0.472656
$\frac{9}{32}$	9.71886	0.273987	9.78302	0.368171	9.83891	0.476244
$\frac{5}{16}$	9.72102	0.276720	9.78488	0.371338	9.84055	0.479845
$\frac{11}{32}$	9.72316	0.279466	9.78674	0.374519	9.84218	0.483459
$\frac{3}{8}$	9.72530	0.282227	9.78858	0.377713	9.84380	0.487088
$\frac{13}{32}$	9.72742	0.285000	9.79042	0.380920	9.84542	0.490729
$\frac{7}{16}$	9.72954	0.287788	9.79225	0.384142	9.84703	0.494385
$\frac{15}{32}$	9.73164	0.290588	9.79407	0.387377	9.84864	0.498054
$\frac{1}{2}$	9.73373	0.293403	9.79588	0.390625	9.85024	0.501736
$\frac{17}{32}$	9.73582	0.296231	9.79769	0.393887	9.85183	0.505432
$\frac{9}{16}$	9.73789	0.299072	9.79948	0.397163	9.85342	0.509142
$\frac{19}{32}$	9.73995	0.301927	9.80128	0.400452	9.85500	0.512865
$\frac{5}{8}$	9.74200	0.304796	9.80306	0.403754	9.85658	0.516602
$\frac{21}{32}$	9.74405	0.307678	9.80483	0.407071	9.85815	0.520352
$\frac{11}{16}$	9.74608	0.310574	9.80660	0.410400	9.85971	0.524116
$\frac{23}{32}$	9.74811	0.313483	9.80837	0.413744	9.86127	0.527893
$\frac{3}{4}$	9.75012	0.316406	9.81012	0.417101	9.86283	0.531684
$\frac{25}{32}$	9.75213	0.319343	9.81187	0.420471	9.86438	0.535489
$\frac{13}{16}$	9.75413	0.322293	9.81361	0.423855	9.86592	0.539307
$\frac{27}{32}$	9.75611	0.325256	9.81534	0.427253	9.86746	0.543138
$\frac{7}{8}$	9.75809	0.328234	9.81707	0.430664	9.86899	0.546984
$\frac{29}{32}$	9.76006	0.331224	9.81879	0.434089	9.87051	0.550842
$\frac{15}{16}$	9.76202	0.334229	9.82050	0.437527	9.87203	0.554715
$\frac{31}{32}$	9.76397	0.337246	9.82221	0.440979	9.87355	0.558601
1	9.76592	0.340278	9.82391	0.444444	9.87506	0.562500

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	9.87506	0.562500	9.92082	0.694444	9.96221	0.840278
$\frac{1}{32}$	9.87657	0.568413	9.92217	0.698792	9.96344	0.845059
$\frac{1}{16}$	9.87807	0.570340	9.92352	0.703152	9.96467	0.849854
$\frac{3}{32}$	9.87956	0.574280	9.92487	0.707526	9.96590	0.854662
$\frac{1}{8}$	9.88105	0.578234	9.92621	0.711914	9.96712	0.859484
$\frac{5}{32}$	9.88254	0.582201	9.92755	0.716315	9.96834	0.864319
$\frac{3}{16}$	9.88402	0.586182	9.92889	0.720730	9.96955	0.869168
$\frac{7}{32}$	9.88549	0.590176	9.93022	0.725159	9.97076	0.874030
$\frac{1}{4}$	9.88696	0.594184	9.93154	0.729601	9.97197	0.878906
$\frac{9}{32}$	9.88843	0.598206	9.93286	0.734056	9.97318	0.883796
$\frac{5}{16}$	9.88989	0.602241	9.93418	0.738525	9.97438	0.888699
$\frac{11}{32}$	9.89134	0.606289	9.93550	0.743008	9.97558	0.893616
$\frac{3}{8}$	9.89279	0.610352	9.93681	0.747504	9.97677	0.898546
$\frac{13}{32}$	9.89424	0.614427	9.93811	0.752014	9.97796	0.903490
$\frac{7}{16}$	9.89568	0.618517	9.93942	0.756538	9.97915	0.908447
$\frac{15}{32}$	9.89711	0.622620	9.94071	0.761074	9.98033	0.913418
$\frac{1}{2}$	9.89854	0.626736	9.94201	0.765625	9.98152	0.918403
$\frac{17}{32}$	9.89997	0.630866	9.94330	0.770189	9.98270	0.923401
$\frac{9}{16}$	9.90139	0.635010	9.94459	0.774767	9.98387	0.928413
$\frac{19}{32}$	9.90281	0.639167	9.94587	0.779358	9.98504	0.933438
$\frac{5}{8}$	9.90422	0.643338	9.94715	0.783963	9.98621	0.938477
$\frac{21}{32}$	9.90563	0.647522	9.94842	0.788581	9.98738	0.943529
$\frac{11}{16}$	9.90703	0.651720	9.94969	0.793213	9.98854	0.948595
$\frac{23}{32}$	9.90843	0.655931	9.95096	0.797858	9.98970	0.953674
$\frac{3}{4}$	9.90982	0.660156	9.95223	0.802517	9.99086	0.958767
$\frac{25}{32}$	9.91121	0.664395	9.95349	0.807190	9.99201	0.963874
$\frac{13}{16}$	9.91260	0.668647	9.95474	0.811876	9.99316	0.968994
$\frac{27}{32}$	9.91398	0.672913	9.95600	0.816576	9.99431	0.974128
$\frac{7}{8}$	9.91536	0.677192	9.95725	0.821289	9.99545	0.979275
$\frac{29}{32}$	9.91673	0.681485	9.95849	0.826016	9.99659	0.984436
$\frac{15}{16}$	9.91810	0.685791	9.95974	0.830756	9.99773	0.989610
$\frac{31}{32}$	9.91946	0.690111	9.96098	0.835510	9.99887	0.994798
1	9.92082	0.694444	9.96221	0.840278	0.00000	1.000000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.00000	1.0000	0.03476	1.1736	0.06695	1.3611
$\frac{1}{32}$	0.00113	1.0052	0.03580	1.1793	0.06792	1.3672
$\frac{1}{16}$	0.00226	1.0104	0.03685	1.1849	0.06888	1.3733
$\frac{3}{32}$	0.00338	1.0157	0.03788	1.1906	0.06985	1.3794
$\frac{1}{8}$	0.00450	1.0209	0.03892	1.1963	0.07081	1.3855
$\frac{5}{32}$	0.00562	1.0262	0.03995	1.2020	0.07177	1.3917
$\frac{3}{16}$	0.00673	1.0315	0.04098	1.2077	0.07272	1.3978
$\frac{7}{32}$	0.00785	1.0368	0.04201	1.2134	0.07368	1.4040
$\frac{1}{4}$	0.00895	1.0421	0.04303	1.2192	0.07463	1.4102
$\frac{9}{32}$	0.01006	1.0474	0.04406	1.2249	0.07558	1.4163
$\frac{5}{16}$	0.01116	1.0528	0.04508	1.2307	0.07653	1.4226
$\frac{11}{32}$	0.01227	1.0581	0.04610	1.2365	0.07748	1.4288
$\frac{3}{8}$	0.01336	1.0635	0.04711	1.2423	0.07843	1.4350
$\frac{13}{32}$	0.01446	1.0689	0.04813	1.2481	0.07937	1.4413
$\frac{7}{16}$	0.01555	1.0742	0.04914	1.2539	0.08031	1.4475
$\frac{15}{32}$	0.01664	1.0797	0.05015	1.2598	0.08125	1.4538
$\frac{1}{2}$	0.01773	1.0851	0.05115	1.2656	0.08219	1.4601
$\frac{17}{32}$	0.01881	1.0905	0.05216	1.2715	0.08312	1.4664
$\frac{9}{16}$	0.01989	1.0959	0.05316	1.2774	0.08405	1.4727
$\frac{19}{32}$	0.02097	1.1014	0.05416	1.2833	0.08499	1.4790
$\frac{5}{8}$	0.02205	1.1069	0.05516	1.2892	0.08591	1.4854
$\frac{21}{32}$	0.02312	1.1124	0.05615	1.2951	0.08684	1.4917
$\frac{11}{16}$	0.02419	1.1179	0.05714	1.3010	0.08777	1.4981
$\frac{23}{32}$	0.02526	1.1234	0.05813	1.3070	0.08869	1.5045
$\frac{3}{4}$	0.02633	1.1289	0.05912	1.3129	0.08961	1.5109
$\frac{25}{32}$	0.02739	1.1344	0.06011	1.3189	0.09053	1.5173
$\frac{13}{16}$	0.02845	1.1400	0.06109	1.3249	0.09145	1.5237
$\frac{27}{32}$	0.02951	1.1456	0.06207	1.3309	0.09236	1.5301
$\frac{7}{8}$	0.03057	1.1511	0.06305	1.3369	0.09328	1.5366
$\frac{29}{32}$	0.03162	1.1567	0.06403	1.3429	0.09419	1.5430
$\frac{15}{16}$	0.03267	1.1624	0.06500	1.3490	0.09510	1.5495
$\frac{31}{32}$	0.03372	1.1680	0.06598	1.3550	0.09600	1.5560
1	0.03476	1.1736	0.06695	1.3611	0.09691	1.5625



Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.09691	1.5625	0.12494	1.7778	0.15127	2.0069
$\frac{1}{32}$	0.09781	1.5690	0.12579	1.7847	0.15207	2.0143
$\frac{1}{16}$	0.09872	1.5755	0.12663	1.7917	0.15286	2.0217
$\frac{3}{32}$	0.09962	1.5821	0.12748	1.7987	0.15366	2.0291
$\frac{1}{8}$	0.10051	1.5887	0.12832	1.8057	0.15445	2.0366
$\frac{5}{32}$	0.10141	1.5952	0.12916	1.8127	0.15524	2.0440
$\frac{3}{16}$	0.10231	1.6018	0.13000	1.8197	0.15603	2.0515
$\frac{7}{32}$	0.10320	1.6084	0.13084	1.8267	0.15682	2.0589
$\frac{1}{4}$	0.10409	1.6150	0.13167	1.8338	0.15761	2.0664
$\frac{9}{32}$	0.10498	1.6216	0.13251	1.8408	0.15839	2.0739
$\frac{5}{16}$	0.10588	1.6283	0.13334	1.8479	0.15918	2.0814
$\frac{11}{32}$	0.10675	1.6349	0.13417	1.8550	0.15996	2.0889
$\frac{3}{8}$	0.10763	1.6416	0.13500	1.8621	0.16074	2.0965
$\frac{13}{32}$	0.10852	1.6483	0.13583	1.8692	0.16152	2.1040
$\frac{7}{16}$	0.10940	1.6550	0.13666	1.8763	0.16230	2.1116
$\frac{15}{32}$	0.11027	1.6617	0.13748	1.8835	0.16308	2.1191
$\frac{1}{2}$	0.11115	1.6684	0.13830	1.8906	0.16386	2.1267
$\frac{17}{32}$	0.11203	1.6751	0.13912	1.8978	0.16463	2.1343
$\frac{9}{16}$	0.11290	1.6819	0.13994	1.9050	0.16541	2.1420
$\frac{19}{32}$	0.11377	1.6886	0.14076	1.9122	0.16618	2.1496
$\frac{5}{8}$	0.11464	1.6954	0.14158	1.9194	0.16695	2.1572
$\frac{21}{32}$	0.11551	1.7022	0.14240	1.9266	0.16772	2.1649
$\frac{11}{16}$	0.11637	1.7090	0.14321	1.9338	0.16849	2.1726
$\frac{23}{32}$	0.11724	1.7158	0.14402	1.9411	0.16925	2.1802
$\frac{3}{4}$	0.11810	1.7227	0.14483	1.9484	0.17002	2.1879
$\frac{25}{32}$	0.11896	1.7295	0.14564	1.9556	0.17078	2.1956
$\frac{13}{16}$	0.11982	1.7364	0.14645	1.9629	0.17154	2.2034
$\frac{27}{32}$	0.12068	1.7432	0.14726	1.9702	0.17230	2.2111
$\frac{7}{8}$	0.12153	1.7501	0.14806	1.9775	0.17306	2.2189
$\frac{29}{32}$	0.12239	1.7570	0.14887	1.9849	0.17382	2.2266
$\frac{15}{16}$	0.12324	1.7639	0.14967	1.9922	0.17458	2.2344
$\frac{31}{32}$	0.12409	1.7708	0.15047	1.9996	0.17534	2.2422
1	0.12494	1.7778	0.15127	2.0069	0.17609	2.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.17609	2.2600	0.19957	2.5069	0.22185	2.7778
$\frac{1}{32}$	0.17684	2.2578	0.20029	2.5152	0.22253	2.7865
$\frac{1}{16}$	0.17760	2.2657	0.20100	2.5235	0.22320	2.7952
$\frac{3}{32}$	0.17835	2.2735	0.20171	2.5317	0.22388	2.8039
$\frac{1}{8}$	0.17910	2.2814	0.20242	2.5400	0.22455	2.8126
$\frac{5}{32}$	0.17984	2.2892	0.20313	2.5483	0.22523	2.8214
$\frac{3}{16}$	0.18069	2.2971	0.20384	2.5567	0.22590	2.8301
$\frac{7}{32}$	0.18134	2.3050	0.20454	2.5650	0.22657	2.8389
$\frac{1}{4}$	0.18208	2.3129	0.20525	2.5734	0.22724	2.8477
$\frac{9}{32}$	0.18282	2.3209	0.20595	2.5817	0.22791	2.8565
$\frac{5}{16}$	0.18357	2.3288	0.20666	2.5901	0.22858	2.8653
$\frac{11}{32}$	0.18431	2.3368	0.20736	2.5985	0.22925	2.8741
$\frac{3}{8}$	0.18505	2.3447	0.20806	2.6069	0.22992	2.8829
$\frac{13}{32}$	0.18578	2.3527	0.20876	2.6153	0.23058	2.8918
$\frac{7}{16}$	0.18652	2.3607	0.20946	2.6237	0.23125	2.9006
$\frac{15}{32}$	0.18726	2.3687	0.21016	2.6322	0.23191	2.9095
$\frac{1}{2}$	0.18799	2.3767	0.21085	2.6406	0.23257	2.9184
$\frac{17}{32}$	0.18872	2.3848	0.21155	2.6491	0.23323	2.9273
$\frac{9}{16}$	0.18946	2.3928	0.21224	2.6576	0.23389	2.9362
$\frac{19}{32}$	0.19019	2.4009	0.21294	2.6661	0.23455	2.9452
$\frac{5}{8}$	0.19092	2.4090	0.21363	2.6746	0.23521	2.9541
$\frac{21}{32}$	0.19164	2.4171	0.21432	2.6831	0.23587	2.9631
$\frac{11}{16}$	0.19237	2.4252	0.21501	2.6917	0.23653	2.9720
$\frac{23}{32}$	0.19310	2.4333	0.21570	2.7002	0.23718	2.9810
$\frac{3}{4}$	0.19382	2.4414	0.21639	2.7088	0.23784	2.9900
$\frac{25}{32}$	0.19454	2.4496	0.21707	2.7173	0.23849	2.9990
$\frac{13}{16}$	0.19527	2.4577	0.21776	2.7259	0.23914	3.0081
$\frac{27}{32}$	0.19599	2.4659	0.21844	2.7345	0.23979	3.0171
$\frac{7}{8}$	0.19671	2.4741	0.21913	2.7432	0.24045	3.0262
$\frac{29}{32}$	0.19742	2.4823	0.21981	2.7518	0.24109	3.0352
$\frac{15}{16}$	0.19814	2.4905	0.22049	2.7604	0.24174	3.0443
$\frac{31}{32}$	0.19886	2.4987	0.22117	2.7691	0.24239	3.0534
1	0.19957	2.5069	0.22185	2.7778	0.24304	3.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.24304	3.0625	0.26324	3.3611	0.28255	3.6736
$\frac{1}{32}$	0.24368	3.0716	0.26386	3.3707	0.28314	3.6836
$\frac{1}{16}$	0.24433	3.0808	0.26447	3.3802	0.28373	3.6936
$\frac{3}{32}$	0.24497	3.0899	0.26509	3.3898	0.28431	3.7036
$\frac{1}{8}$	0.24562	3.0991	0.26570	3.3994	0.28490	3.7137
$\frac{5}{32}$	0.24626	3.1082	0.26632	3.4090	0.28549	3.7237
$\frac{3}{16}$	0.24690	3.1174	0.26693	3.4186	0.28607	3.7338
$\frac{7}{32}$	0.24754	3.1266	0.26754	3.4283	0.28666	3.7438
$\frac{1}{4}$	0.24818	3.1359	0.26815	3.4379	0.28724	3.7539
$\frac{9}{32}$	0.24882	3.1451	0.26876	3.4476	0.28783	3.7640
$\frac{5}{16}$	0.24945	3.1543	0.26937	3.4573	0.28841	3.7741
$\frac{11}{32}$	0.25009	3.1636	0.26997	3.4670	0.28899	3.7842
$\frac{3}{8}$	0.25072	3.1729	0.27058	3.4767	0.28957	3.7944
$\frac{13}{32}$	0.25136	3.1821	0.27119	3.4864	0.29015	3.8045
$\frac{7}{16}$	0.25199	3.1914	0.27179	3.4961	0.29073	3.8147
$\frac{15}{32}$	0.25263	3.2007	0.27240	3.5059	0.29131	3.8249
$\frac{1}{2}$	0.25326	3.2101	0.27300	3.5156	0.29189	3.8351
$\frac{17}{32}$	0.25389	3.2194	0.27360	3.5254	0.29246	3.8453
$\frac{9}{16}$	0.25452	3.2288	0.27421	3.5352	0.29304	3.8555
$\frac{19}{32}$	0.25515	3.2381	0.27481	3.5450	0.29362	3.8657
$\frac{5}{8}$	0.25577	3.2475	0.27541	3.5548	0.29419	3.8760
$\frac{21}{32}$	0.25640	3.2569	0.27601	3.5646	0.29476	3.8862
$\frac{11}{16}$	0.25703	3.2663	0.27661	3.5745	0.29534	3.8965
$\frac{23}{32}$	0.25765	3.2757	0.27720	3.5843	0.29591	3.9068
$\frac{3}{4}$	0.25828	3.2852	0.27780	3.5942	0.29648	3.9171
$\frac{25}{32}$	0.25890	3.2946	0.27840	3.6041	0.29705	3.9274
$\frac{13}{16}$	0.25952	3.3041	0.27899	3.6140	0.29762	3.9377
$\frac{27}{32}$	0.26015	3.3135	0.27959	3.6239	0.29819	3.9481
$\frac{7}{8}$	0.26077	3.3230	0.28018	3.6338	0.29876	3.9584
$\frac{29}{32}$	0.26139	3.3325	0.28077	3.6437	0.29933	3.9688
$\frac{15}{16}$	0.26201	3.3420	0.28136	3.6537	0.29990	3.9792
$\frac{31}{32}$	0.26262	3.3516	0.28196	3.6636	0.30046	3.9896
1	0.26324	3.3611	0.28255	3.6736	0.30103	4.0000

2'

Fractions of an inch.	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.30108	4.0000	0.31876	4.3403	0.33579	4.6044
$\frac{1}{32}$	0.30180	4.0104	0.31930	4.3511	0.33631	4.7057
$\frac{1}{16}$	0.30216	4.0209	0.31984	4.3620	0.33683	4.7170
$\frac{1}{8}$	0.30272	4.0313	0.32038	4.3729	0.33736	4.7284
$\frac{3}{16}$	0.30329	4.0418	0.32092	4.3838	0.33788	4.7397
$\frac{1}{4}$	0.30385	4.0523	0.32146	4.3947	0.33839	4.7510
$\frac{5}{16}$	0.30441	4.0627	0.32200	4.4056	0.33891	4.7624
$\frac{3}{8}$	0.30497	4.0732	0.32254	4.4166	0.33943	4.7738
$\frac{1}{2}$	0.30553	4.0838	0.32308	4.4275	0.33995	4.7852
$\frac{5}{8}$	0.30609	4.0943	0.32362	4.4385	0.34046	4.7966
$\frac{3}{4}$	0.30665	4.1048	0.32415	4.4495	0.34098	4.8080
$\frac{7}{8}$	0.30721	4.1154	0.32469	4.4605	0.34150	4.8194
$\frac{15}{16}$	0.30776	4.1260	0.32522	4.4715	0.34201	4.8308
$1\frac{1}{16}$	0.30832	4.1366	0.32576	4.4825	0.34253	4.8423
$1\frac{1}{8}$	0.30888	4.1472	0.32629	4.4935	0.34304	4.8538
$1\frac{1}{4}$	0.30943	4.1578	0.32683	4.5046	0.34355	4.8652
$1\frac{3}{8}$	0.30998	4.1684	0.32736	4.5156	0.34406	4.8767
$1\frac{1}{2}$	0.31054	4.1790	0.32789	4.5267	0.34458	4.8882
$1\frac{5}{8}$	0.31109	4.1897	0.32842	4.5378	0.34509	4.8996
$1\frac{3}{4}$	0.31164	4.2004	0.32895	4.5489	0.34560	4.9113
$1\frac{7}{8}$	0.31219	4.2110	0.32948	4.5600	0.34611	4.9229
$2\frac{1}{16}$	0.31275	4.2217	0.33001	4.5711	0.34662	4.9344
$2\frac{1}{8}$	0.31330	4.2324	0.33054	4.5823	0.34713	4.9460
$2\frac{1}{4}$	0.31385	4.2432	0.33107	4.5934	0.34763	4.9576
$2\frac{3}{8}$	0.31439	4.2539	0.33160	4.6046	0.34814	4.9692
$2\frac{1}{2}$	0.31494	4.2647	0.33212	4.6158	0.34865	4.9808
$2\frac{5}{8}$	0.31549	4.2754	0.33265	4.6270	0.34916	4.9924
$2\frac{3}{4}$	0.31604	4.2862	0.33317	4.6382	0.34966	5.0041
$2\frac{7}{8}$	0.31658	4.2970	0.33370	4.6494	0.35017	5.0157
$3\frac{1}{16}$	0.31713	4.3078	0.33422	4.6607	0.35067	5.0274
$3\frac{1}{8}$	0.31767	4.3186	0.33475	4.6719	0.35118	5.0391
$3\frac{1}{4}$	0.31822	4.3294	0.33527	4.6832	0.35168	5.0508
$3\frac{3}{8}$	0.31876	4.3403	0.33579	4.6944	0.35218	5.0625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.35218	5.0635	0.36798	5.4444	0.38322	5.8403
$\frac{1}{32}$	0.35238	5.0742	0.36846	5.4506	0.38368	5.8529
$\frac{1}{16}$	0.35319	5.0860	0.36905	5.4688	0.38415	5.8655
$\frac{3}{32}$	0.35369	5.0977	0.36943	5.4810	0.38462	5.8781
$\frac{1}{8}$	0.35419	5.1095	0.36991	5.4932	0.38508	5.8907
$\frac{5}{32}$	0.35469	5.1213	0.37039	5.5054	0.38555	5.9034
$\frac{3}{16}$	0.35519	5.1331	0.37088	5.5176	0.38602	5.9160
$\frac{7}{32}$	0.35569	5.1449	0.37136	5.5298	0.38648	5.9287
$\frac{1}{4}$	0.35619	5.1567	0.37184	5.5421	0.38694	5.9414
$\frac{9}{32}$	0.35668	5.1685	0.37232	5.5544	0.38741	5.9541
$\frac{5}{16}$	0.35718	5.1804	0.37280	5.5667	0.38787	5.9668
$\frac{11}{32}$	0.35768	5.1922	0.37328	5.5789	0.38833	5.9796
$\frac{3}{8}$	0.35817	5.2041	0.37375	5.5913	0.38880	5.9923
$\frac{13}{32}$	0.35867	5.2160	0.37423	5.6036	0.38926	6.0051
$\frac{7}{16}$	0.35916	5.2279	0.37471	5.6159	0.38972	6.0178
$\frac{15}{32}$	0.35966	5.2398	0.37519	5.6283	0.39018	6.0306
$\frac{1}{2}$	0.36015	5.2517	0.37566	5.6406	0.39064	6.0434
$\frac{17}{32}$	0.36064	5.2637	0.37614	5.6530	0.39110	6.0562
$\frac{9}{16}$	0.36114	5.2756	0.37661	5.6654	0.39156	6.0690
$\frac{19}{32}$	0.36163	5.2876	0.37709	5.6778	0.39202	6.0819
$\frac{5}{8}$	0.36212	5.2996	0.37756	5.6902	0.39248	6.0947
$\frac{21}{32}$	0.36261	5.3116	0.37804	5.7026	0.39293	6.1076
$\frac{11}{16}$	0.36310	5.3236	0.37851	5.7151	0.39339	6.1205
$\frac{23}{32}$	0.36359	5.3356	0.37898	5.7275	0.39385	6.1334
$\frac{3}{4}$	0.36408	5.3477	0.37946	5.7400	0.39431	6.1463
$\frac{25}{32}$	0.36457	5.3597	0.37993	5.7525	0.39476	6.1592
$\frac{13}{16}$	0.36506	5.3718	0.38040	5.7650	0.39522	6.1721
$\frac{27}{32}$	0.36555	5.3839	0.38087	5.7775	0.39567	6.1851
$\frac{7}{8}$	0.36603	5.3959	0.38134	5.7900	0.39613	6.1980
$\frac{29}{32}$	0.36652	5.4080	0.38181	5.8026	0.39658	6.2110
$\frac{15}{16}$	0.36701	5.4202	0.38228	5.8151	0.39703	6.2240
$\frac{31}{32}$	0.36749	5.4323	0.38275	5.8277	0.39749	6.2370
1	0.36798	5.4444	0.38322	5.8403	0.39794	6.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.39794	6.2500	0.41218	6.6736	0.42597	7.1111
$\frac{1}{32}$	0.39839	6.2630	0.41262	6.6871	0.42639	7.1250
$\frac{1}{16}$	0.39884	6.2761	0.41306	6.7005	0.42682	7.1389
$\frac{3}{32}$	0.39930	6.2891	0.41349	6.7140	0.42724	7.1528
$\frac{1}{8}$	0.39975	6.3022	0.41393	6.7275	0.42766	7.1668
$\frac{5}{32}$	0.40020	6.3153	0.41436	6.7411	0.42808	7.1807
$\frac{3}{16}$	0.40065	6.3284	0.41480	6.7546	0.42851	7.1947
$\frac{7}{32}$	0.40110	6.3415	0.41523	6.7681	0.42893	7.2087
$\frac{1}{4}$	0.40154	6.3546	0.41567	6.7817	0.42935	7.2227
$\frac{9}{32}$	0.40199	6.3677	0.41610	6.7953	0.42977	7.2367
$\frac{5}{16}$	0.40244	6.3809	0.41654	6.8088	0.43019	7.2507
$\frac{11}{32}$	0.40289	6.3940	0.41697	6.8224	0.43061	7.2647
$\frac{3}{8}$	0.40334	6.4072	0.41740	6.8360	0.43103	7.2788
$\frac{13}{32}$	0.40378	6.4204	0.41783	6.8497	0.43145	7.2928
$\frac{7}{16}$	0.40423	6.4336	0.41827	6.8633	0.43187	7.3069
$\frac{15}{32}$	0.40467	6.4468	0.41870	6.8770	0.43228	7.3210
$\frac{1}{2}$	0.40512	6.4601	0.41913	6.8906	0.43270	7.3351
$\frac{17}{32}$	0.40556	6.4733	0.41956	6.9043	0.43312	7.3492
$\frac{9}{16}$	0.40601	6.4866	0.41999	6.9180	0.43354	7.3633
$\frac{19}{32}$	0.40645	6.4998	0.42042	6.9317	0.43395	7.3774
$\frac{5}{8}$	0.40689	6.5131	0.42085	6.9454	0.43437	7.3916
$\frac{21}{32}$	0.40734	6.5264	0.42128	6.9592	0.43479	7.4058
$\frac{11}{16}$	0.40778	6.5397	0.42171	6.9729	0.43520	7.4199
$\frac{23}{32}$	0.40822	6.5531	0.42213	6.9867	0.43562	7.4341
$\frac{3}{4}$	0.40866	6.5664	0.42256	7.0004	0.43603	7.4484
$\frac{25}{32}$	0.40911	6.5798	0.42299	7.0142	0.43644	7.4626
$\frac{13}{16}$	0.40955	6.5931	0.42342	7.0280	0.43686	7.4768
$\frac{27}{32}$	0.40999	6.6065	0.42384	7.0418	0.43727	7.4911
$\frac{7}{8}$	0.41043	6.6199	0.42427	7.0557	0.43768	7.5053
$\frac{29}{32}$	0.41087	6.6333	0.42469	7.0695	0.43810	7.5196
$\frac{15}{16}$	0.41130	6.6467	0.42512	7.0834	0.43851	7.5339
$\frac{31}{32}$	0.41174	6.6602	0.42554	7.0972	0.43892	7.5482
1	0.41218	6.6736	0.42597	7.1111	0.43933	7.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.43933	7.5625	0.45230	8.0278	0.46489	8.5069
$\frac{1}{32}$	0.43974	7.5768	0.45270	8.0425	0.46527	8.5221
$\frac{1}{16}$	0.44015	7.5912	0.45310	8.0573	0.46566	8.5374
$\frac{3}{32}$	0.44056	7.6055	0.45349	8.0721	0.46605	8.5526
$\frac{1}{8}$	0.44097	7.6199	0.45389	8.0869	0.46644	8.5678
$\frac{5}{32}$	0.44138	7.6343	0.45429	8.1017	0.46682	8.5831
$\frac{3}{16}$	0.44179	7.6487	0.45469	8.1166	0.46721	8.5983
$\frac{7}{32}$	0.44220	7.6631	0.45508	8.1314	0.46759	8.6136
$\frac{1}{4}$	0.44261	7.6775	0.45548	8.1463	0.46798	8.6289
$\frac{9}{32}$	0.44302	7.6920	0.45588	8.1611	0.46836	8.6442
$\frac{5}{16}$	0.44343	7.7064	0.45627	8.1760	0.46875	8.6595
$\frac{11}{32}$	0.44383	7.7209	0.45667	8.1909	0.46913	8.6749
$\frac{3}{8}$	0.44424	7.7354	0.45706	8.2058	0.46952	8.6902
$\frac{13}{32}$	0.44465	7.7498	0.45746	8.2208	0.46990	8.7056
$\frac{7}{16}$	0.44505	7.7643	0.45785	8.2357	0.47028	8.7209
$\frac{15}{32}$	0.44546	7.7789	0.45824	8.2507	0.47066	8.7363
$\frac{1}{2}$	0.44586	7.7934	0.45864	8.2656	0.47105	8.7517
$\frac{17}{32}$	0.44627	7.8079	0.45903	8.2806	0.47143	8.7672
$\frac{9}{16}$	0.44667	7.8225	0.45942	8.2956	0.47181	8.7826
$\frac{19}{32}$	0.44708	7.8371	0.45982	8.3106	0.47219	8.7980
$\frac{5}{8}$	0.44748	7.8517	0.46021	8.3256	0.47257	8.8135
$\frac{21}{32}$	0.44788	7.8663	0.46060	8.3407	0.47295	8.8289
$\frac{11}{16}$	0.44829	7.8809	0.46099	8.3557	0.47333	8.8444
$\frac{23}{32}$	0.44869	7.8955	0.46138	8.3708	0.47372	8.8599
$\frac{3}{4}$	0.44909	7.9102	0.46177	8.3859	0.47409	8.8754
$\frac{25}{32}$	0.44949	7.9248	0.46216	8.4009	0.47447	8.8910
$\frac{13}{16}$	0.44990	7.9395	0.46255	8.4160	0.47485	8.9065
$\frac{27}{32}$	0.45030	7.9542	0.46294	8.4312	0.47523	8.9220
$\frac{7}{8}$	0.45070	7.9689	0.46333	8.4463	0.47561	8.9376
$\frac{29}{32}$	0.45110	7.9836	0.46372	8.4614	0.47599	8.9532
$\frac{15}{16}$	0.45150	7.9983	0.46411	8.4766	0.47637	8.9688
$\frac{31}{32}$	0.45190	8.0130	0.46450	8.4918	0.47674	8.9844
1	0.45230	8.0278	0.46489	8.5069	0.47712	9.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.47712	9.0000	0.48902	9.5069	0.50060	10.0278
$\frac{1}{32}$	0.47750	9.0156	0.48939	9.5230	0.50096	10.0448
$\frac{1}{16}$	0.47787	9.0313	0.48975	9.5391	0.50132	10.0608
$\frac{3}{32}$	0.47825	9.0469	0.49012	9.5552	0.50167	10.0773
$\frac{1}{8}$	0.47863	9.0626	0.49049	9.5713	0.50203	10.0939
$\frac{5}{32}$	0.47900	9.0783	0.49085	9.5874	0.50238	10.1104
$\frac{3}{16}$	0.47938	9.0940	0.49122	9.6035	0.50274	10.1270
$\frac{7}{32}$	0.47975	9.1097	0.49158	9.6197	0.50310	10.1436
$\frac{1}{4}$	0.48013	9.1254	0.49195	9.6359	0.50345	10.1602
$\frac{9}{32}$	0.48050	9.1412	0.49231	9.6520	0.50380	10.1768
$\frac{5}{16}$	0.48087	9.1569	0.49267	9.6682	0.50416	10.1934
$\frac{11}{32}$	0.48125	9.1727	0.49304	9.6844	0.50451	10.2100
$\frac{3}{8}$	0.48162	9.1885	0.49340	9.7006	0.50487	10.2267
$\frac{13}{32}$	0.48199	9.2043	0.49376	9.7169	0.50522	10.2433
$\frac{7}{16}$	0.48237	9.2201	0.49413	9.7331	0.50557	10.2600
$\frac{15}{32}$	0.48274	9.2359	0.49449	9.7494	0.50593	10.2767
$\frac{1}{2}$	0.48311	9.2517	0.49485	9.7656	0.50628	10.2934
$\frac{17}{32}$	0.48348	9.2676	0.49521	9.7819	0.50663	10.3101
$\frac{9}{16}$	0.48385	9.2834	0.49557	9.7982	0.50698	10.3269
$\frac{19}{32}$	0.48423	9.2993	0.49593	9.8145	0.50734	10.3436
$\frac{5}{8}$	0.48460	9.3152	0.49630	9.8308	0.50769	10.3604
$\frac{21}{32}$	0.48497	9.3311	0.49666	9.8472	0.50804	10.3771
$\frac{11}{16}$	0.48534	9.3470	0.49702	9.8635	0.50839	10.3939
$\frac{23}{32}$	0.48571	9.3630	0.49738	9.8799	0.50874	10.4107
$\frac{3}{4}$	0.48608	9.3789	0.49774	9.8963	0.50909	10.4275
$\frac{25}{32}$	0.48645	9.3949	0.49810	9.9127	0.50944	10.4443
$\frac{13}{16}$	0.48681	9.4108	0.49845	9.9291	0.50979	10.4612
$\frac{27}{32}$	0.48718	9.4268	0.49881	9.9455	0.51014	10.4780
$\frac{7}{8}$	0.48755	9.4428	0.49917	9.9619	0.51049	10.4949
$\frac{29}{32}$	0.48792	9.4588	0.49953	9.9784	0.51084	10.5118
$\frac{15}{16}$	0.48829	9.4749	0.49989	9.9948	0.51119	10.5287
$\frac{31}{32}$	0.48865	9.4909	0.50025	10.0113	0.51154	10.5456
1	0.48902	9.5069	0.50060	10.0278	0.51188	10.5625

3'

Fractions of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.51188	10.5695	0.52228	11.1111	0.53300	11.6736
$\frac{1}{32}$	0.51223	10.5794	0.52322	11.1285	0.53393	11.6914
$\frac{1}{16}$	0.51258	10.5864	0.52356	11.1459	0.53426	11.7092
$\frac{3}{32}$	0.51293	10.6133	0.52390	11.1633	0.53459	11.7271
$\frac{1}{8}$	0.51327	10.6303	0.52423	11.1807	0.53492	11.7449
$\frac{5}{32}$	0.51362	10.6473	0.52457	11.1981	0.53525	11.7628
$\frac{3}{16}$	0.51397	10.6643	0.52491	11.2155	0.53558	11.7806
$\frac{7}{32}$	0.51431	10.6813	0.52525	11.2330	0.53591	11.7985
$\frac{1}{4}$	0.51466	10.6984	0.52558	11.2504	0.53624	11.8164
$\frac{9}{32}$	0.51500	10.7154	0.52592	11.2679	0.53657	11.8343
$\frac{5}{16}$	0.51535	10.7324	0.52626	11.2854	0.53690	11.8522
$\frac{11}{32}$	0.51569	10.7495	0.52660	11.3029	0.53723	11.8702
$\frac{3}{8}$	0.51604	10.7666	0.52693	11.3204	0.53756	11.8881
$\frac{13}{32}$	0.51638	10.7837	0.52727	11.3380	0.53789	11.9061
$\frac{7}{16}$	0.51673	10.8008	0.52760	11.3555	0.53821	11.9241
$\frac{15}{32}$	0.51707	10.8179	0.52794	11.3731	0.53854	11.9421
$\frac{1}{2}$	0.51742	10.8351	0.52827	11.3906	0.53887	11.9601
$\frac{17}{32}$	0.51776	10.8522	0.52861	11.4082	0.53919	11.9781
$\frac{9}{16}$	0.51810	10.8694	0.52894	11.4258	0.53952	11.9961
$\frac{19}{32}$	0.51845	10.8866	0.52928	11.4434	0.53985	12.0142
$\frac{5}{8}$	0.51879	10.9038	0.52961	11.4610	0.54017	12.0322
$\frac{21}{32}$	0.51913	10.9210	0.52995	11.4787	0.54050	12.0503
$\frac{11}{16}$	0.51947	10.9382	0.53028	11.4963	0.54082	12.0684
$\frac{23}{32}$	0.51981	10.9554	0.53061	11.5140	0.54115	12.0865
$\frac{3}{4}$	0.52016	10.9727	0.53095	11.5317	0.54148	12.1046
$\frac{25}{32}$	0.52050	10.9899	0.53128	11.5494	0.54180	12.1227
$\frac{13}{16}$	0.52084	11.0072	0.53161	11.5671	0.54212	12.1409
$\frac{27}{32}$	0.52118	11.0245	0.53194	11.5848	0.54245	12.1590
$\frac{7}{8}$	0.52152	11.0418	0.53228	11.6025	0.54277	12.1772
$\frac{29}{32}$	0.52186	11.0591	0.53261	11.6203	0.54310	12.1954
$\frac{15}{16}$	0.52220	11.0764	0.53294	11.6380	0.54342	12.2136
$\frac{31}{32}$	0.52254	11.0938	0.53327	11.6558	0.54374	12.2318
1	0.52288	11.1111	0.53360	11.6736	0.54407	12.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.54407	12.2500	0.55429	12.8403	0.56427	13.4444
$\frac{1}{32}$	0.54439	12.2682	0.55460	12.8589	0.56458	13.4635
$\frac{1}{16}$	0.54471	12.2865	0.55492	12.8776	0.56489	13.4827
$\frac{3}{32}$	0.54504	12.3047	0.55523	12.8963	0.56520	13.5018
$\frac{1}{8}$	0.54536	12.3230	0.55555	12.9150	0.56550	13.5209
$\frac{5}{32}$	0.54568	12.3413	0.55586	12.9338	0.56581	13.5401
$\frac{3}{16}$	0.54600	12.3596	0.55618	12.9525	0.56612	13.5593
$\frac{7}{32}$	0.54632	12.3779	0.55649	12.9713	0.56643	13.5785
$\frac{1}{4}$	0.54665	12.3963	0.55680	12.9900	0.56673	13.5977
$\frac{9}{32}$	0.54697	12.4146	0.55712	13.0088	0.56704	13.6169
$\frac{5}{16}$	0.54729	12.4330	0.55743	13.0276	0.56735	13.6361
$\frac{11}{32}$	0.54761	12.4513	0.55775	13.0464	0.56765	13.6553
$\frac{3}{8}$	0.54793	12.4697	0.55806	13.0652	0.56796	13.6746
$\frac{13}{32}$	0.54825	12.4881	0.55837	13.0840	0.56826	13.6939
$\frac{7}{16}$	0.54857	12.5065	0.55868	13.1029	0.56857	13.7131
$\frac{15}{32}$	0.54889	12.5250	0.55900	13.1218	0.56887	13.7324
$\frac{1}{2}$	0.54921	12.5434	0.55931	13.1406	0.56918	13.7517
$\frac{17}{32}$	0.54953	12.5619	0.55962	13.1595	0.56948	13.7711
$\frac{9}{16}$	0.54985	12.5803	0.55993	13.1784	0.56979	13.7904
$\frac{19}{32}$	0.55016	12.5988	0.56024	13.1973	0.57009	13.8097
$\frac{5}{8}$	0.55048	12.6173	0.56055	13.2163	0.57040	13.8291
$\frac{21}{32}$	0.55080	12.6358	0.56087	13.2352	0.57070	13.8485
$\frac{11}{16}$	0.55112	12.6543	0.56118	13.2542	0.57100	13.8679
$\frac{23}{32}$	0.55144	12.6729	0.56149	13.2731	0.57131	13.8873
$\frac{3}{4}$	0.55175	12.6914	0.56180	13.2921	0.57161	13.9067
$\frac{25}{32}$	0.55207	12.7100	0.56211	13.3111	0.57191	13.9261
$\frac{13}{16}$	0.55239	12.7285	0.56242	13.3301	0.57222	13.9456
$\frac{27}{32}$	0.55271	12.7471	0.56273	13.3491	0.57252	13.9650
$\frac{7}{8}$	0.55302	12.7657	0.56304	13.3682	0.57283	13.9845
$\frac{29}{32}$	0.55334	12.7843	0.56335	13.3872	0.57313	14.0040
$\frac{15}{16}$	0.55366	12.8030	0.56366	13.4063	0.57343	14.0235
$\frac{31}{32}$	0.55397	12.8216	0.56396	13.4254	0.57373	14.0430
1	0.55429	12.8403	0.56427	13.4444	0.57403	14.0625

Fractions of an Inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.57403	14.0625	0.58358	14.6944	0.59292	15.3403
$\frac{1}{32}$	0.57433	14.0820	0.58387	14.7144	0.59321	15.3607
$\frac{1}{16}$	0.57463	14.1016	0.58417	14.7344	0.59349	15.3811
$\frac{3}{32}$	0.57494	14.1212	0.58446	14.7544	0.59378	15.4015
$\frac{1}{8}$	0.57524	14.1407	0.58476	14.7744	0.59407	15.4220
$\frac{5}{32}$	0.57554	14.1603	0.58505	14.7944	0.59436	15.4424
$\frac{3}{16}$	0.57584	14.1799	0.58534	14.8145	0.59465	15.4629
$\frac{7}{32}$	0.57614	14.1996	0.58564	14.8345	0.59493	15.4834
$\frac{1}{4}$	0.57644	14.2192	0.58593	14.8546	0.59522	15.5039
$\frac{9}{32}$	0.57674	14.2388	0.58622	14.8747	0.59551	15.5244
$\frac{5}{16}$	0.57704	14.2585	0.58652	14.8948	0.59579	15.5449
$\frac{11}{32}$	0.57734	14.2782	0.58681	14.9149	0.59608	15.5655
$\frac{3}{8}$	0.57764	14.2979	0.58710	14.9350	0.59637	15.5860
$\frac{13}{32}$	0.57793	14.3176	0.58740	14.9551	0.59665	15.6066
$\frac{7}{16}$	0.57823	14.3373	0.58769	14.9753	0.59694	15.6272
$\frac{15}{32}$	0.57853	14.3570	0.58798	14.9954	0.59723	15.6478
$\frac{1}{2}$	0.57883	14.3767	0.58827	15.0156	0.59751	15.6684
$\frac{17}{32}$	0.57913	14.3965	0.58856	15.0358	0.59780	15.6890
$\frac{9}{16}$	0.57943	14.4163	0.58886	15.0560	0.59808	15.7097
$\frac{19}{32}$	0.57972	14.4360	0.58915	15.0762	0.59837	15.7303
$\frac{5}{8}$	0.58002	14.4558	0.58944	15.0965	0.59865	15.7510
$\frac{21}{32}$	0.58032	14.4756	0.58973	15.1167	0.59894	15.7717
$\frac{11}{16}$	0.58062	14.4955	0.59002	15.1370	0.59922	15.7923
$\frac{23}{32}$	0.58091	14.5153	0.59031	15.1572	0.59951	15.8130
$\frac{3}{4}$	0.58121	14.5352	0.59060	15.1775	0.59979	15.8338
$\frac{25}{32}$	0.58151	14.5550	0.59089	15.1978	0.60008	15.8545
$\frac{13}{16}$	0.58180	14.5749	0.59118	15.2181	0.60036	15.8752
$\frac{27}{32}$	0.58210	14.5948	0.59147	15.2385	0.60064	15.8960
$\frac{7}{8}$	0.58239	14.6147	0.59176	15.2588	0.60093	15.9168
$\frac{29}{32}$	0.58269	14.6346	0.59205	15.2791	0.60121	15.9376
$\frac{15}{16}$	0.58299	14.6545	0.59234	15.2995	0.60149	15.9584
$\frac{31}{32}$	0.58328	14.6745	0.59263	15.3199	0.60178	15.9792
1	0.58358	14.6944	0.59292	15.3403	0.60206	16.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.60206	16.0000	0.61101	16.6736	0.61979	17.3611
$\frac{1}{32}$	0.60234	16.0208	0.61129	16.6949	0.62006	17.3828
$\frac{1}{16}$	0.60263	16.0417	0.61157	16.7162	0.62033	17.4045
$\frac{3}{32}$	0.60291	16.0626	0.61184	16.7375	0.62060	17.4263
$\frac{1}{8}$	0.60319	16.0834	0.61212	16.7588	0.62087	17.4480
$\frac{5}{32}$	0.60347	16.1043	0.61240	16.7801	0.62114	17.4698
$\frac{3}{16}$	0.60375	16.1252	0.61267	16.8015	0.62141	17.4916
$\frac{7}{32}$	0.60403	16.1462	0.61295	16.8228	0.62168	17.5134
$\frac{1}{4}$	0.60432	16.1671	0.61322	16.8442	0.62195	17.5352
$\frac{9}{32}$	0.60460	16.1880	0.61350	16.8656	0.62222	17.5570
$\frac{5}{16}$	0.60488	16.2090	0.61378	16.8870	0.62249	17.5788
$\frac{11}{32}$	0.60516	16.2300	0.61405	16.9084	0.62276	17.6006
$\frac{3}{8}$	0.60544	16.2510	0.61433	16.9298	0.62303	17.6225
$\frac{13}{32}$	0.60572	16.2720	0.61460	16.9512	0.62330	17.6444
$\frac{7}{16}$	0.60600	16.2930	0.61488	16.9727	0.62357	17.6663
$\frac{15}{32}$	0.60628	16.3140	0.61515	16.9941	0.62384	17.6882
$\frac{1}{2}$	0.60656	16.3351	0.61542	17.0156	0.62411	17.7101
$\frac{17}{32}$	0.60684	16.3561	0.61570	17.0371	0.62438	17.7320
$\frac{9}{16}$	0.60712	16.3772	0.61597	17.0586	0.62465	17.7539
$\frac{19}{32}$	0.60740	16.3983	0.61625	17.0801	0.62492	17.7759
$\frac{5}{8}$	0.60768	16.4194	0.61652	17.1017	0.62518	17.7979
$\frac{21}{32}$	0.60796	16.4405	0.61679	17.1232	0.62545	17.8198
$\frac{11}{16}$	0.60824	16.4616	0.61707	17.1448	0.62572	17.8418
$\frac{23}{32}$	0.60851	16.4828	0.61734	17.1663	0.62599	17.8638
$\frac{3}{4}$	0.60879	16.5039	0.61761	17.1879	0.62625	17.8859
$\frac{25}{32}$	0.60907	16.5251	0.61788	17.2095	0.62652	17.9079
$\frac{13}{16}$	0.60935	16.5463	0.61816	17.2311	0.62679	17.9299
$\frac{27}{32}$	0.60963	16.5674	0.61843	17.2528	0.62706	17.9520
$\frac{7}{8}$	0.60991	16.5886	0.61870	17.2744	0.62732	17.9741
$\frac{29}{32}$	0.61018	16.6099	0.61897	17.2961	0.62759	17.9962
$\frac{15}{16}$	0.61046	16.6311	0.61925	17.3177	0.62786	18.0183
$\frac{31}{32}$	0.61074	16.6524	0.61952	17.3394	0.62812	18.0404
1	0.61101	16.6736	0.61979	17.3611	0.62839	18.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.62839	18.0625	0.63682	18.7778	0.64509	19.5069
$\frac{1}{32}$	0.62865	18.0846	0.63708	18.8004	0.64535	19.5300
$\frac{1}{16}$	0.62892	18.1068	0.63734	18.8229	0.64561	19.5530
$\frac{3}{32}$	0.62919	18.1290	0.63760	18.8455	0.64586	19.5760
$\frac{1}{8}$	0.62945	18.1512	0.63786	18.8682	0.64612	19.5991
$\frac{5}{32}$	0.62972	18.1733	0.63813	18.8908	0.64637	19.6221
$\frac{3}{16}$	0.62998	18.1956	0.63839	18.9134	0.64663	19.6452
$\frac{7}{32}$	0.63025	18.2178	0.63865	18.9361	0.64688	19.6683
$\frac{1}{4}$	0.63051	18.2400	0.63891	18.9588	0.64714	19.6914
$\frac{9}{32}$	0.63078	18.2623	0.63916	18.9815	0.64739	19.7145
$\frac{5}{16}$	0.63104	18.2845	0.63942	19.0042	0.64765	19.7377
$\frac{11}{32}$	0.63131	18.3068	0.63968	19.0269	0.64790	19.7608
$\frac{3}{8}$	0.63157	18.3291	0.63994	19.0496	0.64816	19.7840
$\frac{13}{32}$	0.63183	18.3514	0.64020	19.0723	0.64841	19.8071
$\frac{7}{16}$	0.63210	18.3737	0.64046	19.0951	0.64866	19.8303
$\frac{15}{32}$	0.63236	18.3961	0.64072	19.1178	0.64892	19.8535
$\frac{1}{2}$	0.63263	18.4184	0.64098	19.1406	0.64917	19.8767
$\frac{17}{32}$	0.63289	18.4408	0.64124	19.1634	0.64943	19.9000
$\frac{9}{16}$	0.63315	18.4631	0.64149	19.1862	0.64968	19.9232
$\frac{19}{32}$	0.63342	18.4855	0.64175	19.2090	0.64993	19.9465
$\frac{5}{8}$	0.63368	18.5079	0.64201	19.2319	0.65019	19.9697
$\frac{21}{32}$	0.63394	18.5303	0.64227	19.2547	0.65044	19.9930
$\frac{11}{16}$	0.63420	18.5528	0.64253	19.2776	0.65069	20.0163
$\frac{23}{32}$	0.63447	18.5752	0.64278	19.3005	0.65094	20.0396
$\frac{3}{4}$	0.63473	18.5977	0.64304	19.3234	0.65120	20.0629
$\frac{25}{32}$	0.63499	18.6201	0.64330	19.3463	0.65145	20.0863
$\frac{13}{16}$	0.63525	18.6426	0.64356	19.3692	0.65170	20.1096
$\frac{27}{32}$	0.63552	18.6651	0.64381	19.3921	0.65195	20.1330
$\frac{7}{8}$	0.63578	18.6876	0.64407	19.4150	0.65221	20.1564
$\frac{29}{32}$	0.63604	18.7101	0.64433	19.4380	0.65246	20.1797
$\frac{15}{16}$	0.63630	18.7327	0.64458	19.4610	0.65271	20.2032
$\frac{31}{32}$	0.63656	18.7552	0.64484	19.4839	0.65296	20.2266
1	0.63682	18.7778	0.64509	19.5069	0.65321	20.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.65321	20.2500	0.66118	21.0069	0.66901	21.7778
$\frac{1}{32}$	0.65346	20.2734	0.66143	21.0308	0.66925	21.8021
$\frac{1}{16}$	0.65371	20.2969	0.66167	21.0547	0.66949	21.8264
$\frac{3}{32}$	0.65397	20.3204	0.66192	21.0786	0.66973	21.8508
$\frac{1}{8}$	0.65422	20.3439	0.66217	21.1025	0.66998	21.8751
$\frac{5}{32}$	0.65447	20.3674	0.66241	21.1265	0.67022	21.8995
$\frac{3}{16}$	0.65472	20.3909	0.66266	21.1504	0.67046	21.9239
$\frac{7}{32}$	0.65497	20.4144	0.66291	21.1744	0.67070	21.9482
$\frac{1}{4}$	0.65522	20.4379	0.66315	21.1984	0.67094	21.9727
$\frac{9}{32}$	0.65547	20.4615	0.66340	21.2223	0.67118	21.9971
$\frac{5}{16}$	0.65572	20.4851	0.66364	21.2463	0.67142	22.0215
$\frac{11}{32}$	0.65597	20.5086	0.66389	21.2704	0.67166	22.0460
$\frac{3}{8}$	0.65622	20.5322	0.66413	21.2944	0.67191	22.0704
$\frac{13}{32}$	0.65647	20.5558	0.66438	21.3184	0.67215	22.0949
$\frac{7}{16}$	0.65672	20.5795	0.66462	21.3425	0.67239	22.1194
$\frac{15}{32}$	0.65697	20.6031	0.66487	21.3665	0.67263	22.1439
$\frac{1}{2}$	0.65722	20.6267	0.66511	21.3906	0.67287	22.1684
$\frac{17}{32}$	0.65746	20.6504	0.66536	21.4147	0.67311	22.1929
$\frac{9}{16}$	0.65771	20.6741	0.66560	21.4388	0.67335	22.2175
$\frac{19}{32}$	0.65796	20.6978	0.66584	21.4630	0.67359	22.2420
$\frac{5}{8}$	0.65821	20.7215	0.66609	21.4871	0.67383	22.2666
$\frac{21}{32}$	0.65846	20.7452	0.66633	21.5112	0.67407	22.2912
$\frac{11}{16}$	0.65871	20.7689	0.66658	21.5354	0.67431	22.3158
$\frac{23}{32}$	0.65895	20.7927	0.66682	21.5596	0.67455	22.3404
$\frac{3}{4}$	0.65920	20.8164	0.66706	21.5838	0.67478	22.3650
$\frac{25}{32}$	0.65945	20.8402	0.66731	21.6080	0.67502	22.3897
$\frac{13}{16}$	0.65970	20.8640	0.66755	21.6322	0.67526	22.4143
$\frac{27}{32}$	0.65995	20.8878	0.66779	21.6564	0.67550	22.4390
$\frac{7}{8}$	0.66019	20.9116	0.66804	21.6807	0.67574	22.4637
$\frac{29}{32}$	0.66044	20.9354	0.66828	21.7049	0.67598	22.4883
$\frac{15}{16}$	0.66069	20.9592	0.66852	21.7292	0.67622	22.5130
$\frac{31}{32}$	0.66093	20.9831	0.66876	21.7535	0.67646	22.5378
1	0.66118	21.0069	0.66901	21.7778	0.67669	22.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.67669	22.5625	0.68425	23.3611	0.69167	24.1736
$\frac{1}{32}$	0.67693	22.5872	0.68448	23.3863	0.69190	24.1992
$\frac{1}{16}$	0.67717	22.6120	0.68471	23.4115	0.69213	24.2249
$\frac{3}{32}$	0.67741	22.6368	0.68495	23.4367	0.69236	24.2505
$\frac{1}{8}$	0.67764	22.6616	0.68518	23.4619	0.69259	24.2762
$\frac{5}{32}$	0.67788	22.6864	0.68542	23.4871	0.69282	24.3018
$\frac{3}{16}$	0.67812	22.7112	0.68565	23.5124	0.69305	24.3275
$\frac{7}{32}$	0.67836	22.7360	0.68588	23.5377	0.69328	24.3532
$\frac{1}{4}$	0.67859	22.7609	0.68611	23.5629	0.69351	24.3789
$\frac{9}{32}$	0.67883	22.7857	0.68635	23.5882	0.69374	24.4046
$\frac{5}{16}$	0.67907	22.8106	0.68658	23.6135	0.69396	24.4304
$\frac{11}{32}$	0.67930	22.8355	0.68681	23.6388	0.69419	24.4561
$\frac{3}{8}$	0.67954	22.8604	0.68705	23.6642	0.69442	24.4819
$\frac{13}{32}$	0.67978	22.8853	0.68728	23.6895	0.69465	24.5077
$\frac{7}{16}$	0.68001	22.9102	0.68751	23.7149	0.69488	24.5334
$\frac{15}{32}$	0.68025	22.9351	0.68774	23.7402	0.69511	24.5593
$\frac{1}{2}$	0.68049	22.9601	0.68797	23.7656	0.69534	24.5851
$\frac{17}{32}$	0.68072	22.9850	0.68821	23.7910	0.69556	24.6109
$\frac{9}{16}$	0.68096	23.0100	0.68844	23.8164	0.69579	24.6367
$\frac{19}{32}$	0.68119	23.0350	0.68867	23.8419	0.69602	24.6626
$\frac{5}{8}$	0.68143	23.0600	0.68890	23.8673	0.69625	24.6885
$\frac{21}{32}$	0.68167	23.0850	0.68913	23.8927	0.69647	24.7144
$\frac{11}{16}$	0.68190	23.1101	0.68936	23.9182	0.69670	24.7403
$\frac{23}{32}$	0.68214	23.1351	0.68960	23.9437	0.69693	24.7662
$\frac{3}{4}$	0.68237	23.1602	0.68983	23.9692	0.69716	24.7921
$\frac{25}{32}$	0.68261	23.1852	0.69006	23.9947	0.69738	24.8180
$\frac{13}{16}$	0.68284	23.2103	0.69029	24.0202	0.69761	24.8440
$\frac{27}{32}$	0.68308	23.2354	0.69052	24.0457	0.69784	24.8700
$\frac{7}{8}$	0.68331	23.2605	0.69075	24.0713	0.69803	24.8959
$\frac{29}{32}$	0.68354	23.2857	0.69098	24.0968	0.69829	24.9219
$\frac{15}{16}$	0.68378	23.3108	0.69121	24.1224	0.69852	24.9479
$\frac{31}{32}$	0.68401	23.3359	0.69144	24.1480	0.69874	24.9740
1	0.68425	23.3611	0.69167	24.1736	0.69897	25.0000



5'

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.68897	25.0000	0.70815	25.8403	0.71321	26.6944
$\frac{1}{32}$	0.68920	25.0260	0.70837	25.8668	0.71343	26.7214
$\frac{1}{16}$	0.68942	25.0521	0.70859	25.8933	0.71365	26.7483
$\frac{3}{32}$	0.68965	25.0782	0.70882	25.9198	0.71387	26.7752
$\frac{1}{8}$	0.68987	25.1043	0.70704	25.9463	0.71409	26.8022
$\frac{5}{32}$	0.70010	25.1304	0.70726	25.9728	0.71430	26.8292
$\frac{3}{16}$	0.70033	25.1565	0.70748	25.9994	0.71452	26.8561
$\frac{7}{32}$	0.70055	25.1826	0.70770	26.0259	0.71474	26.8831
$\frac{1}{4}$	0.70078	25.2088	0.70792	26.0525	0.71496	26.9102
$\frac{9}{32}$	0.70100	25.2349	0.70815	26.0791	0.71518	26.9372
$\frac{5}{16}$	0.70123	25.2611	0.70837	26.1057	0.71539	26.9642
$\frac{11}{32}$	0.70145	25.2873	0.70859	26.1323	0.71561	26.9913
$\frac{3}{8}$	0.70168	25.3135	0.70881	26.1590	0.71583	27.0183
$\frac{13}{32}$	0.70190	25.3397	0.70903	26.1856	0.71605	27.0454
$\frac{7}{16}$	0.70213	25.3659	0.70925	26.2123	0.71626	27.0725
$\frac{15}{32}$	0.70235	25.3922	0.70947	26.2389	0.71648	27.0996
$\frac{1}{2}$	0.70257	25.4184	0.70969	26.2656	0.71670	27.1267
$\frac{17}{32}$	0.70280	25.4447	0.70991	26.2923	0.71692	27.1539
$\frac{9}{16}$	0.70302	25.4709	0.71014	26.3190	0.71713	27.1810
$\frac{19}{32}$	0.70325	25.4972	0.71036	26.3458	0.71735	27.2082
$\frac{5}{8}$	0.70347	25.5235	0.71058	26.3725	0.71757	27.2354
$\frac{21}{32}$	0.70369	25.5499	0.71080	26.3993	0.71778	27.2625
$\frac{11}{16}$	0.70392	25.5762	0.71102	26.4260	0.71800	27.2897
$\frac{23}{32}$	0.70414	25.6025	0.71124	26.4528	0.71822	27.3170
$\frac{3}{4}$	0.70437	25.6289	0.71146	26.4796	0.71843	27.3442
$\frac{25}{32}$	0.70459	25.6553	0.71168	26.5064	0.71865	27.3714
$\frac{13}{16}$	0.70481	25.6817	0.71190	26.5332	0.71886	27.3987
$\frac{27}{32}$	0.70503	25.7081	0.71211	26.5601	0.71908	27.4260
$\frac{7}{8}$	0.70526	25.7345	0.71233	26.5869	0.71930	27.4532
$\frac{29}{32}$	0.70548	25.7609	0.71255	26.6138	0.71951	27.4805
$\frac{15}{16}$	0.70570	25.7874	0.71277	26.6407	0.71973	27.5078
$\frac{31}{32}$	0.70593	25.8138	0.71299	26.6675	0.71994	27.5352
1	0.70615	25.8403	0.71321	26.6944	0.72016	27.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.72016	27.5625	0.72700	28.4444	0.73373	29.3403
$\frac{1}{32}$	0.72037	27.5899	0.72721	28.4722	0.73394	29.3685
$\frac{1}{16}$	0.72059	27.6172	0.72742	28.5000	0.73415	29.3967
$\frac{3}{32}$	0.72081	27.6446	0.72763	28.5278	0.73436	29.4250
$\frac{1}{8}$	0.72102	27.6720	0.72785	28.5557	0.73457	29.4532
$\frac{5}{32}$	0.72124	27.6994	0.72806	28.5835	0.73477	29.4815
$\frac{3}{16}$	0.72145	27.7268	0.72827	28.6114	0.73498	29.5098
$\frac{7}{32}$	0.72166	27.7542	0.72848	28.6392	0.73519	29.5381
$\frac{1}{4}$	0.72188	27.7817	0.72869	28.6671	0.73540	29.5664
$\frac{9}{32}$	0.72209	27.8091	0.72890	28.6950	0.73561	29.5947
$\frac{5}{16}$	0.72231	27.8366	0.72911	28.7229	0.73582	29.6231
$\frac{11}{32}$	0.72252	27.8641	0.72933	28.7508	0.73602	29.6514
$\frac{3}{8}$	0.72274	27.8916	0.72954	28.7788	0.73623	29.6798
$\frac{13}{32}$	0.72295	27.9191	0.72975	28.8067	0.73644	29.7082
$\frac{7}{16}$	0.72316	27.9466	0.72996	28.8347	0.73665	29.7366
$\frac{15}{32}$	0.72338	27.9742	0.73017	28.8626	0.73685	29.7650
$\frac{1}{2}$	0.72359	28.0017	0.73038	28.8906	0.73706	29.7934
$\frac{17}{32}$	0.72381	28.0293	0.73059	28.9186	0.73727	29.8218
$\frac{9}{16}$	0.72402	28.0569	0.73080	28.9466	0.73747	29.8503
$\frac{19}{32}$	0.72423	28.0845	0.73101	28.9747	0.73768	29.8788
$\frac{5}{8}$	0.72445	28.1121	0.73122	29.0027	0.73789	29.9072
$\frac{21}{32}$	0.72466	28.1397	0.73143	29.0308	0.73809	29.9357
$\frac{11}{16}$	0.72487	28.1673	0.73164	29.0588	0.73830	29.9642
$\frac{23}{32}$	0.72509	28.1950	0.73185	29.0869	0.73851	29.9927
$\frac{3}{4}$	0.72530	28.2227	0.73206	29.1150	0.73871	30.0213
$\frac{25}{32}$	0.72551	28.2503	0.73227	29.1431	0.73892	30.0498
$\frac{13}{16}$	0.72572	28.2780	0.73248	29.1713	0.73913	30.0784
$\frac{27}{32}$	0.72594	28.3057	0.73269	29.1994	0.73933	30.1069
$\frac{7}{8}$	0.72615	28.3334	0.73290	29.2275	0.73954	30.1355
$\frac{29}{32}$	0.72636	28.3612	0.73311	29.2557	0.73975	30.1641
$\frac{15}{16}$	0.72657	28.3889	0.73331	29.2839	0.73996	30.1927
$\frac{31}{32}$	0.72679	28.4167	0.73352	29.3121	0.74016	30.2214
1	0.72700	28.4444	0.73372	29.3403	0.74036	30.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.74036	30.2500	0.74689	31.1736	0.75333	32.1111
$\frac{1}{32}$	0.74057	30.2787	0.74710	31.2027	0.75353	32.1406
$\frac{1}{16}$	0.74077	30.3073	0.74730	31.2318	0.75373	32.1702
$\frac{3}{32}$	0.74098	30.3360	0.74750	31.2609	0.75393	32.1997
$\frac{1}{8}$	0.74118	30.3647	0.74770	31.2900	0.75413	32.2293
$\frac{5}{32}$	0.74139	30.3934	0.74791	31.3192	0.75432	32.2589
$\frac{3}{16}$	0.74159	30.4221	0.74811	31.3483	0.75452	32.2884
$\frac{7}{32}$	0.74180	30.4509	0.74831	31.3775	0.75472	32.3180
$\frac{1}{4}$	0.74200	30.4796	0.74851	31.4067	0.75492	32.3477
$\frac{9}{32}$	0.74221	30.5084	0.74871	31.4359	0.75512	32.3773
$\frac{5}{16}$	0.74241	30.5371	0.74891	31.4651	0.75532	32.4069
$\frac{11}{32}$	0.74262	30.5659	0.74912	31.4943	0.75552	32.4366
$\frac{3}{8}$	0.74282	30.5947	0.74932	31.5235	0.75572	32.4663
$\frac{13}{32}$	0.74303	30.6235	0.74952	31.5528	0.75591	32.4959
$\frac{7}{16}$	0.74323	30.6524	0.74972	31.5821	0.75611	32.5256
$\frac{15}{32}$	0.74344	30.6812	0.74992	31.6113	0.75631	32.5553
$\frac{1}{2}$	0.74364	30.7101	0.75012	31.6406	0.75651	32.5851
$\frac{17}{32}$	0.74384	30.7389	0.75032	31.6699	0.75671	32.6148
$\frac{9}{16}$	0.74405	30.7678	0.75052	31.6992	0.75691	32.6446
$\frac{19}{32}$	0.74425	30.7967	0.75073	31.7286	0.75710	32.6743
$\frac{5}{8}$	0.74446	30.8256	0.75093	31.7579	0.75730	32.7041
$\frac{21}{32}$	0.74466	30.8546	0.75113	31.7873	0.75750	32.7339
$\frac{11}{16}$	0.74486	30.8835	0.75133	31.8167	0.75770	32.7637
$\frac{23}{32}$	0.74507	30.9124	0.75153	31.8460	0.75789	32.7935
$\frac{3}{4}$	0.74527	30.9414	0.75173	31.8754	0.75809	32.8234
$\frac{25}{32}$	0.74547	30.9704	0.75193	31.9048	0.75829	32.8532
$\frac{13}{16}$	0.74568	30.9994	0.75213	31.9343	0.75849	32.8831
$\frac{27}{32}$	0.74588	31.0284	0.75233	31.9637	0.75868	32.9129
$\frac{7}{8}$	0.74608	31.0574	0.75253	31.9932	0.75888	32.9428
$\frac{29}{32}$	0.74629	31.0864	0.75273	32.0226	0.75908	32.9727
$\frac{15}{16}$	0.74649	31.1155	0.75293	32.0521	0.75927	33.0026
$\frac{31}{32}$	0.74669	31.1445	0.75313	32.0816	0.75947	33.0326
1	0.74689	31.1736	0.75333	32.1111	0.75967	33.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.75967	33.0625	0.76592	34.0278	0.77208	35.0069
$\frac{1}{32}$	0.75986	33.0925	0.76611	34.0582	0.77227	35.0378
$\frac{1}{16}$	0.76006	33.1224	0.76630	34.0886	0.77246	35.0686
$\frac{3}{32}$	0.76026	33.1524	0.76650	34.1190	0.77265	35.0995
$\frac{1}{8}$	0.76045	33.1824	0.76669	34.1494	0.77284	35.1303
$\frac{5}{32}$	0.76065	33.2124	0.76689	34.1799	0.77303	35.1612
$\frac{3}{16}$	0.76085	33.2424	0.76708	34.2103	0.77322	35.1921
$\frac{7}{32}$	0.76104	33.2725	0.76727	34.2408	0.77341	35.2230
$\frac{1}{4}$	0.76124	33.3025	0.76747	34.2713	0.77360	35.2539
$\frac{9}{32}$	0.76143	33.3326	0.76766	34.3018	0.77379	35.2848
$\frac{5}{16}$	0.76163	33.3627	0.76785	34.3323	0.77398	35.3158
$\frac{11}{32}$	0.76183	33.3927	0.76804	34.3628	0.77417	35.3467
$\frac{3}{8}$	0.76202	33.4229	0.76824	34.3933	0.77436	35.3777
$\frac{13}{32}$	0.76222	33.4530	0.76843	34.4239	0.77455	35.4087
$\frac{7}{16}$	0.76241	33.4831	0.76862	34.4545	0.77475	35.4397
$\frac{15}{32}$	0.76261	33.5132	0.76882	34.4850	0.77493	35.4707
$\frac{1}{2}$	0.76280	33.5434	0.76901	34.5156	0.77512	35.5017
$\frac{17}{32}$	0.76300	33.5736	0.76920	34.5462	0.77531	35.5328
$\frac{9}{16}$	0.76319	33.6038	0.76939	34.5769	0.77550	35.5638
$\frac{19}{32}$	0.76339	33.6340	0.76959	34.6075	0.77569	35.5949
$\frac{5}{8}$	0.76358	33.6642	0.76978	34.6381	0.77588	35.6260
$\frac{21}{32}$	0.76378	33.6944	0.76997	34.6688	0.77607	35.6571
$\frac{11}{16}$	0.76397	33.7246	0.77016	34.6995	0.77626	35.6882
$\frac{23}{32}$	0.76417	33.7549	0.77035	34.7302	0.77645	35.7193
$\frac{3}{4}$	0.76436	33.7852	0.77055	34.7609	0.77664	35.7504
$\frac{25}{32}$	0.76456	33.8154	0.77074	34.7916	0.77683	35.7816
$\frac{13}{16}$	0.76475	33.8457	0.77093	34.8223	0.77702	35.8127
$\frac{27}{32}$	0.76495	33.8760	0.77112	34.8530	0.77721	35.8439
$\frac{7}{8}$	0.76514	33.9064	0.77131	34.8838	0.77740	35.8751
$\frac{29}{32}$	0.76533	33.9367	0.77150	34.9146	0.77759	35.9063
$\frac{15}{16}$	0.76553	33.9670	0.77169	34.9453	0.77777	35.9375
$\frac{31}{32}$	0.76572	33.9974	0.77189	34.9761	0.77796	35.9688
1	0.76592	34.0278	0.77208	35.0069	0.77815	36.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.77815	38.0000	0.78414	37.0069	0.79005	38.0278
$\frac{1}{32}$	0.77834	38.0313	0.78433	37.0386	0.79023	38.0599
$\frac{1}{16}$	0.77853	38.0625	0.78451	37.0703	0.79042	38.0920
$\frac{3}{32}$	0.77872	38.0938	0.78470	37.1021	0.79060	38.1242
$\frac{1}{8}$	0.77890	38.1251	0.78488	37.1338	0.79078	38.1564
$\frac{5}{32}$	0.77909	38.1564	0.78507	37.1655	0.79097	38.1885
$\frac{3}{16}$	0.77928	38.1877	0.78526	37.1973	0.79115	38.2207
$\frac{7}{32}$	0.77947	38.2191	0.78544	37.2291	0.79133	38.2529
$\frac{1}{4}$	0.77966	38.2504	0.78563	37.2609	0.79152	38.2852
$\frac{9}{32}$	0.77984	38.2818	0.78581	37.2926	0.79170	38.3174
$\frac{5}{16}$	0.78003	38.3132	0.78600	37.3245	0.79188	38.3496
$\frac{11}{32}$	0.78022	38.3446	0.78618	37.3563	0.79206	38.3819
$\frac{3}{8}$	0.78041	38.3760	0.78637	37.3881	0.79225	38.4142
$\frac{13}{32}$	0.78059	38.4074	0.78655	37.4200	0.79243	38.4465
$\frac{7}{16}$	0.78078	38.4388	0.78674	37.4518	0.79261	38.4788
$\frac{15}{32}$	0.78097	38.4703	0.78692	37.4837	0.79279	38.5111
$\frac{1}{2}$	0.78116	38.5017	0.78711	37.5156	0.79298	38.5434
$\frac{17}{32}$	0.78134	38.5332	0.78729	37.5475	0.79316	38.5757
$\frac{9}{16}$	0.78153	38.5647	0.78748	37.5795	0.79334	38.6081
$\frac{19}{32}$	0.78172	38.5962	0.78766	37.6114	0.79352	38.6405
$\frac{5}{8}$	0.78190	38.6277	0.78784	37.6433	0.79370	38.6729
$\frac{21}{32}$	0.78209	38.6592	0.78803	37.6753	0.79388	38.7052
$\frac{11}{16}$	0.78228	38.6908	0.78821	37.7073	0.79407	38.7377
$\frac{23}{32}$	0.78247	38.7223	0.78840	37.7393	0.79425	38.7701
$\frac{3}{4}$	0.78265	38.7539	0.78858	37.7713	0.79443	38.8025
$\frac{25}{32}$	0.78284	38.7855	0.78876	37.8033	0.79461	38.8350
$\frac{13}{16}$	0.78302	38.8171	0.78895	37.8353	0.79479	38.8674
$\frac{27}{32}$	0.78321	38.8487	0.78913	37.8674	0.79497	38.8999
$\frac{7}{8}$	0.78340	38.8803	0.78932	37.8994	0.79516	38.9324
$\frac{29}{32}$	0.78358	38.9120	0.78950	37.9315	0.79534	38.9649
$\frac{15}{16}$	0.78377	38.9436	0.78968	37.9636	0.79552	38.9974
$\frac{31}{32}$	0.78396	38.9753	0.78987	37.9957	0.79570	39.0300
1	0.78414	37.0069	0.79005	38.0278	0.79588	39.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.79588	39.0625	0.80163	40.1111	0.80731	41.1736
$\frac{1}{32}$	0.79606	39.0951	0.80181	40.1441	0.80749	41.2070
$\frac{1}{16}$	0.79624	39.1276	0.80199	40.1771	0.80766	41.2405
$\frac{3}{32}$	0.79642	39.1602	0.80217	40.2101	0.80784	41.2739
$\frac{1}{8}$	0.79660	39.1928	0.80235	40.2432	0.80801	41.3074
$\frac{5}{32}$	0.79678	39.2254	0.80252	40.2762	0.80819	41.3409
$\frac{3}{16}$	0.79696	39.2581	0.80270	40.3093	0.80837	41.3744
$\frac{7}{32}$	0.79714	39.2907	0.80288	40.3423	0.80854	41.4079
$\frac{1}{4}$	0.79733	39.3234	0.80306	40.3754	0.80872	41.4414
$\frac{9}{32}$	0.79751	39.3560	0.80324	40.4085	0.80889	41.4749
$\frac{5}{16}$	0.79769	39.3887	0.80341	40.4417	0.80907	41.5085
$\frac{11}{32}$	0.79787	39.4214	0.80359	40.4748	0.80924	41.5421
$\frac{3}{8}$	0.79805	39.4541	0.80377	40.5079	0.80942	41.5756
$\frac{13}{32}$	0.79823	39.4868	0.80395	40.5411	0.80959	41.6092
$\frac{7}{16}$	0.79841	39.5196	0.80413	40.5742	0.80977	41.6428
$\frac{15}{32}$	0.79859	39.5523	0.80430	40.6074	0.80995	41.6764
$\frac{1}{2}$	0.79877	39.5851	0.80448	40.6406	0.81012	41.7101
$\frac{17}{32}$	0.79895	39.6178	0.80466	40.6738	0.81030	41.7437
$\frac{9}{16}$	0.79913	39.6506	0.80483	40.7071	0.81047	41.7774
$\frac{19}{32}$	0.79930	39.6834	0.80501	40.7403	0.81065	41.8110
$\frac{5}{8}$	0.79948	39.7163	0.80519	40.7735	0.81082	41.8447
$\frac{21}{32}$	0.79966	39.7491	0.80537	40.8068	0.81100	41.8784
$\frac{11}{16}$	0.79984	39.7819	0.80554	40.8401	0.81117	41.9121
$\frac{23}{32}$	0.80002	39.8148	0.80572	40.8734	0.81134	41.9459
$\frac{3}{4}$	0.80020	39.8477	0.80590	40.9067	0.81152	41.9796
$\frac{25}{32}$	0.80038	39.8805	0.80607	40.9400	0.81169	42.0134
$\frac{13}{16}$	0.80056	39.9134	0.80625	40.9733	0.81187	42.0471
$\frac{27}{32}$	0.80074	39.9464	0.80643	41.0067	0.81204	42.0809
$\frac{7}{8}$	0.80092	39.9793	0.80660	41.0400	0.81222	42.1147
$\frac{29}{32}$	0.80110	40.0122	0.80678	41.0734	0.81239	42.1485
$\frac{15}{16}$	0.80128	40.0452	0.80696	41.1068	0.81257	42.1823
$\frac{31}{32}$	0.80145	40.0781	0.80713	41.1402	0.81274	42.2162
1	0.80163	40.1111	0.80731	41.1736	0.81291	42.2500

## 6'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.81291	42.2500	0.81845	43.3403	0.82391	44.4444
$\frac{1}{32}$	0.81309	42.2839	0.81862	43.3746	0.82408	44.4792
$\frac{1}{16}$	0.81326	42.3177	0.81879	43.4089	0.82425	44.5139
$\frac{3}{32}$	0.81344	42.3516	0.81896	43.4432	0.82442	44.5487
$\frac{1}{8}$	0.81361	42.3855	0.81913	43.4775	0.82459	44.5834
$\frac{5}{32}$	0.81378	42.4194	0.81930	43.5119	0.82476	44.6182
$\frac{3}{16}$	0.81396	42.4534	0.81948	43.5463	0.82493	44.6530
$\frac{7}{32}$	0.81413	42.4873	0.81965	43.5806	0.82509	44.6878
$\frac{1}{4}$	0.81430	42.5213	0.81982	43.6150	0.82526	44.7227
$\frac{9}{32}$	0.81448	42.5552	0.81999	43.6494	0.82543	44.7575
$\frac{5}{16}$	0.81465	42.5892	0.82016	43.6838	0.82560	44.7923
$\frac{11}{32}$	0.81482	42.6232	0.82033	43.7183	0.82577	44.8272
$\frac{3}{8}$	0.81500	42.6572	0.82050	43.7527	0.82594	44.8621
$\frac{13}{32}$	0.81517	42.6913	0.82067	43.7872	0.82611	44.8970
$\frac{7}{16}$	0.81534	42.7253	0.82084	43.8216	0.82628	44.9319
$\frac{15}{32}$	0.81552	42.7593	0.82102	43.8561	0.82645	44.9668
$\frac{1}{2}$	0.81569	42.7934	0.82119	43.8906	0.82661	45.0017
$\frac{17}{32}$	0.81586	42.8275	0.82136	43.9251	0.82678	45.0367
$\frac{9}{16}$	0.81603	42.8616	0.82153	43.9597	0.82695	45.0716
$\frac{19}{32}$	0.81621	42.8957	0.82170	43.9942	0.82712	45.1066
$\frac{5}{8}$	0.81638	42.9298	0.82187	44.0288	0.82729	45.1416
$\frac{21}{32}$	0.81655	42.9639	0.82204	44.0633	0.82746	45.1766
$\frac{11}{16}$	0.81672	42.9981	0.82221	44.0979	0.82763	45.2116
$\frac{23}{32}$	0.81690	43.0322	0.82238	44.1325	0.82779	45.2466
$\frac{3}{4}$	0.81707	43.0664	0.82255	44.1671	0.82796	45.2817
$\frac{25}{32}$	0.81724	43.1006	0.82272	44.2017	0.82813	45.3167
$\frac{13}{16}$	0.81741	43.1348	0.82289	44.2364	0.82830	45.3518
$\frac{27}{32}$	0.81759	43.1690	0.82306	44.2710	0.82847	45.3869
$\frac{7}{8}$	0.81776	43.2032	0.82323	44.3057	0.82863	45.4220
$\frac{29}{32}$	0.81793	43.2375	0.82340	44.3403	0.82880	45.4571
$\frac{15}{16}$	0.81810	43.2717	0.82357	44.3750	0.82897	45.4922
$\frac{31}{32}$	0.81827	43.3060	0.82374	44.4097	0.82914	45.5274
1	0.81845	43.3403	0.82391	44.4444	0.82930	45.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.82930	45.5625	0.83463	46.6944	0.83990	47.8403
$\frac{1}{32}$	0.82947	45.5977	0.83490	46.7300	0.84008	47.8763
$\frac{1}{16}$	0.82964	45.6328	0.83496	46.7657	0.84022	47.9124
$\frac{3}{32}$	0.82981	45.6680	0.83513	46.8013	0.84039	47.9484
$\frac{1}{8}$	0.82997	45.7032	0.83529	46.8369	0.84055	47.9845
$\frac{5}{32}$	0.83014	45.7385	0.83546	46.8726	0.84071	48.0206
$\frac{3}{16}$	0.83031	45.7737	0.83562	46.9082	0.84088	48.0567
$\frac{7}{32}$	0.83048	45.8089	0.83579	46.9439	0.84104	48.0928
$\frac{1}{4}$	0.83064	45.8442	0.83595	46.9796	0.84120	48.1289
$\frac{9}{32}$	0.83081	45.8795	0.83612	47.0153	0.84137	48.1650
$\frac{5}{16}$	0.83098	45.9147	0.83628	47.0510	0.84153	48.2012
$\frac{11}{32}$	0.83114	45.9500	0.83645	47.0868	0.84169	48.2374
$\frac{3}{8}$	0.83131	45.9854	0.83661	47.1225	0.84185	48.2735
$\frac{13}{32}$	0.83148	46.0207	0.83678	47.1583	0.84202	48.3097
$\frac{7}{16}$	0.83164	46.0560	0.83694	47.1940	0.84218	48.3459
$\frac{15}{32}$	0.83181	46.0914	0.83711	47.2298	0.84234	48.3822
$\frac{1}{2}$	0.83198	46.1267	0.83727	47.2656	0.84251	48.4184
$\frac{17}{32}$	0.83214	46.1621	0.83744	47.3014	0.84267	48.4547
$\frac{9}{16}$	0.83231	46.1975	0.83760	47.3373	0.84283	48.4909
$\frac{19}{32}$	0.83248	46.2329	0.83777	47.3731	0.84299	48.5272
$\frac{5}{8}$	0.83264	46.2683	0.83793	47.4090	0.84315	48.5635
$\frac{21}{32}$	0.83281	46.3038	0.83809	47.4448	0.84332	48.5998
$\frac{11}{16}$	0.83297	46.3392	0.83826	47.4807	0.84348	48.6361
$\frac{23}{32}$	0.83314	46.3747	0.83842	47.5166	0.84364	48.6724
$\frac{3}{4}$	0.83331	46.4102	0.83859	47.5525	0.84380	48.7088
$\frac{25}{32}$	0.83347	46.4456	0.83875	47.5884	0.84397	48.7451
$\frac{13}{16}$	0.83364	46.4811	0.83891	47.6244	0.84413	48.7815
$\frac{27}{32}$	0.83380	46.5167	0.83908	47.6603	0.84429	48.8179
$\frac{7}{8}$	0.83397	46.5522	0.83924	47.6963	0.84445	48.8543
$\frac{29}{32}$	0.83414	46.5877	0.83941	47.7323	0.84461	48.8907
$\frac{15}{16}$	0.83430	46.6233	0.83957	47.7683	0.84477	48.9271
$\frac{31}{32}$	0.83447	46.6589	0.83973	47.8043	0.84494	48.9635
1	0.83463	46.6944	0.83990	47.8403	0.84510	49.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.84510	49.0000	0.85004	50.1736	0.85532	51.3611
$\frac{1}{32}$	0.84526	49.0085	0.85040	50.2105	0.85547	51.3984
$\frac{1}{16}$	0.84542	49.0729	0.85056	50.2474	0.85563	51.4358
$\frac{3}{32}$	0.84558	49.1094	0.85072	50.2843	0.85579	51.4732
$\frac{1}{8}$	0.84574	49.1459	0.85088	50.3213	0.85595	51.5105
$\frac{5}{32}$	0.84591	49.1825	0.85104	50.3582	0.85611	51.5479
$\frac{3}{16}$	0.84607	49.2190	0.85119	50.3952	0.85626	51.5853
$\frac{7}{32}$	0.84623	49.2555	0.85135	50.4322	0.85642	51.6227
$\frac{1}{4}$	0.84639	49.2921	0.85151	50.4692	0.85658	51.6602
$\frac{9}{32}$	0.84655	49.3287	0.85167	50.5062	0.85674	51.6976
$\frac{5}{16}$	0.84671	49.3653	0.85183	50.5432	0.85689	51.7351
$\frac{11}{32}$	0.84687	49.4019	0.85199	50.5802	0.85705	51.7725
$\frac{3}{8}$	0.84703	49.4385	0.85215	50.6173	0.85721	51.8100
$\frac{13}{32}$	0.84719	49.4751	0.85231	50.6544	0.85736	51.8475
$\frac{7}{16}$	0.84735	49.5117	0.85247	50.6914	0.85752	51.8850
$\frac{15}{32}$	0.84751	49.5484	0.85263	50.7285	0.85768	51.9225
$\frac{1}{2}$	0.84768	49.5851	0.85278	50.7656	0.85783	51.9601
$\frac{17}{32}$	0.84784	49.6218	0.85294	50.8027	0.85799	51.9976
$\frac{9}{16}$	0.84800	49.6584	0.85310	50.8399	0.85815	52.0352
$\frac{19}{32}$	0.84816	49.6952	0.85326	50.8770	0.85831	52.0728
$\frac{5}{8}$	0.84832	49.7319	0.85342	50.9142	0.85846	52.1104
$\frac{21}{32}$	0.84848	49.7686	0.85358	50.9513	0.85862	52.1480
$\frac{11}{16}$	0.84864	49.8054	0.85374	50.9885	0.85878	52.1856
$\frac{23}{32}$	0.84880	49.8421	0.85389	51.0257	0.85893	52.2232
$\frac{3}{4}$	0.84896	49.8789	0.85405	51.0629	0.85909	52.2609
$\frac{25}{32}$	0.84912	49.9157	0.85421	51.1002	0.85924	52.2985
$\frac{13}{16}$	0.84928	49.9525	0.85437	51.1374	0.85940	52.3362
$\frac{27}{32}$	0.84944	49.9893	0.85453	51.1746	0.85956	52.3739
$\frac{7}{8}$	0.84960	50.0261	0.85469	51.2119	0.85971	52.4116
$\frac{29}{32}$	0.84976	50.0630	0.85484	51.2492	0.85987	52.4493
$\frac{15}{16}$	0.84992	50.0999	0.85500	51.2865	0.86003	52.4870
$\frac{31}{32}$	0.85008	50.1367	0.85516	51.3238	0.86018	52.5247
1	0.85024	50.1736	0.85532	51.3611	0.86034	52.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.86034	52.5625	0.86530	53.7778	0.87021	55.0069
$\frac{1}{32}$	0.86049	52.6003	0.86546	53.8160	0.87036	55.0456
$\frac{1}{16}$	0.86065	52.6390	0.86561	53.8542	0.87051	55.0842
$\frac{3}{32}$	0.86081	52.6758	0.86576	53.8924	0.87067	55.1229
$\frac{1}{8}$	0.86096	52.7137	0.86592	53.9307	0.87082	55.1616
$\frac{5}{32}$	0.86112	52.7515	0.86607	53.9689	0.87097	55.2003
$\frac{3}{16}$	0.86127	52.7893	0.86623	54.0072	0.87112	55.2390
$\frac{7}{32}$	0.86143	52.8272	0.86638	54.0455	0.87127	55.2777
$\frac{1}{4}$	0.86158	52.8650	0.86653	54.0838	0.87143	55.3164
$\frac{9}{32}$	0.86174	52.9029	0.86669	54.1221	0.87158	55.3552
$\frac{5}{16}$	0.86190	52.9408	0.86684	54.1604	0.87173	55.3939
$\frac{11}{32}$	0.86205	52.9787	0.86699	54.1987	0.87188	55.4327
$\frac{3}{8}$	0.86221	53.0166	0.86715	54.2371	0.87203	55.4715
$\frac{13}{32}$	0.86236	53.0545	0.86730	54.2755	0.87219	55.5103
$\frac{7}{16}$	0.86252	53.0925	0.86746	54.3138	0.87234	55.5491
$\frac{15}{32}$	0.86267	53.1304	0.86761	54.3522	0.87249	55.5879
$\frac{1}{2}$	0.86283	53.1684	0.86776	54.3906	0.87264	55.6267
$\frac{17}{32}$	0.86298	53.2064	0.86792	54.4290	0.87279	55.6656
$\frac{9}{16}$	0.86314	53.2444	0.86807	54.4675	0.87294	55.7045
$\frac{19}{32}$	0.86329	53.2824	0.86823	54.5059	0.87310	55.7433
$\frac{5}{8}$	0.86345	53.3204	0.86838	54.5444	0.87325	55.7822
$\frac{21}{32}$	0.86360	53.3585	0.86853	54.5829	0.87340	55.8211
$\frac{11}{16}$	0.86376	53.3965	0.86868	54.6213	0.87355	55.8601
$\frac{23}{32}$	0.86391	53.4346	0.86883	54.6598	0.87370	55.8990
$\frac{3}{4}$	0.86407	53.4727	0.86899	54.6984	0.87385	55.9379
$\frac{25}{32}$	0.86422	53.5107	0.86914	54.7369	0.87400	55.9769
$\frac{13}{16}$	0.86438	53.5489	0.86929	54.7754	0.87416	56.0159
$\frac{27}{32}$	0.86453	53.5870	0.86945	54.8140	0.87431	56.0549
$\frac{7}{8}$	0.86468	53.6251	0.86960	54.8525	0.87446	56.0939
$\frac{29}{32}$	0.86484	53.6633	0.86975	54.8911	0.87461	56.1329
$\frac{15}{16}$	0.86499	53.7014	0.86990	54.9297	0.87476	56.1719
$\frac{31}{32}$	0.86515	53.7396	0.87006	54.9683	0.87491	56.2109
1	0.86530	53.7778	0.87021	55.0069	0.87506	56.2500

7'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.87506	56.2500	0.87986	57.5069	0.88461	58.7778
$\frac{1}{32}$	0.87521	56.2891	0.88001	57.5464	0.88475	58.8177
$\frac{1}{16}$	0.87536	56.3282	0.88016	57.5860	0.88490	58.8577
$\frac{3}{32}$	0.87551	56.3672	0.88031	57.6255	0.88505	58.8976
$\frac{1}{8}$	0.87566	56.4064	0.88046	57.6650	0.88520	58.9376
$\frac{5}{32}$	0.87581	56.4455	0.88061	57.7046	0.88534	58.9776
$\frac{3}{16}$	0.87597	56.4846	0.88075	57.7442	0.88549	59.0176
$\frac{7}{32}$	0.87612	56.5238	0.88090	57.7838	0.88564	59.0576
$\frac{1}{4}$	0.87627	56.5629	0.88105	57.8234	0.88579	59.0977
$\frac{9}{32}$	0.87642	56.6021	0.88120	57.8630	0.88593	59.1377
$\frac{5}{16}$	0.87657	56.6413	0.88135	57.9026	0.88608	59.1778
$\frac{11}{32}$	0.87672	56.6805	0.88150	57.9422	0.88623	59.2178
$\frac{3}{8}$	0.87687	56.7197	0.88165	57.9819	0.88637	59.2579
$\frac{13}{32}$	0.87702	56.7590	0.88179	58.0215	0.88652	59.2980
$\frac{7}{16}$	0.87717	56.7982	0.88194	58.0612	0.88667	59.3381
$\frac{15}{32}$	0.87732	56.8375	0.88209	58.1009	0.88681	59.3783
$\frac{1}{2}$	0.87747	56.8767	0.88224	58.1406	0.88696	59.4184
$\frac{17}{32}$	0.87762	56.9160	0.88239	58.1803	0.88711	59.4586
$\frac{9}{16}$	0.87777	56.9553	0.88254	58.2201	0.88725	59.4987
$\frac{19}{32}$	0.87792	56.9946	0.88268	58.2598	0.88740	59.5389
$\frac{5}{8}$	0.87807	57.0340	0.88283	58.2996	0.88755	59.5791
$\frac{21}{32}$	0.87822	57.0733	0.88298	58.3394	0.88769	59.6193
$\frac{11}{16}$	0.87837	57.1127	0.88313	58.3792	0.88784	59.6595
$\frac{23}{32}$	0.87852	57.1520	0.88328	58.4190	0.88799	59.6998
$\frac{3}{4}$	0.87867	57.1914	0.88342	58.4588	0.88813	59.7400
$\frac{25}{32}$	0.87881	57.2308	0.88357	58.4986	0.88828	59.7803
$\frac{13}{16}$	0.87896	57.2702	0.88372	58.5384	0.88843	59.8206
$\frac{27}{32}$	0.87911	57.3096	0.88387	58.5783	0.88857	59.8608
$\frac{7}{8}$	0.87926	57.3491	0.88402	58.6182	0.88872	59.9011
$\frac{29}{32}$	0.87941	57.3885	0.88416	58.6580	0.88886	59.9415
$\frac{15}{16}$	0.87956	57.4280	0.88431	58.6979	0.88901	59.9818
$\frac{31}{32}$	0.87971	57.4675	0.88446	58.7379	0.88916	60.0221
1	0.87986	57.5069	0.88461	58.7778	0.88930	60.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.88930	60.0625	0.89395	61.3611	0.89854	62.6736
$\frac{1}{32}$	0.88945	60.1029	0.89409	61.4019	0.89869	62.7149
$\frac{1}{16}$	0.88959	60.1433	0.89424	61.4427	0.89883	62.7561
$\frac{3}{32}$	0.88974	60.1837	0.89438	61.4836	0.89897	62.7974
$\frac{1}{8}$	0.88989	60.2241	0.89452	61.5244	0.89911	62.8387
$\frac{5}{32}$	0.89003	60.2645	0.89467	61.5653	0.89926	62.8799
$\frac{3}{16}$	0.89018	60.3049	0.89481	61.6061	0.89940	62.9213
$\frac{7}{32}$	0.89032	60.3454	0.89496	61.6470	0.89954	62.9626
$\frac{1}{4}$	0.89047	60.3859	0.89510	61.6879	0.89968	63.0039
$\frac{9}{32}$	0.89061	60.4263	0.89524	61.7288	0.89983	63.0453
$\frac{5}{16}$	0.89076	60.4668	0.89539	61.7698	0.89997	63.0866
$\frac{11}{32}$	0.89090	60.5073	0.89553	61.8107	0.90011	63.1280
$\frac{3}{8}$	0.89105	60.5479	0.89568	61.8517	0.90025	63.1694
$\frac{13}{32}$	0.89119	60.5884	0.89582	61.8926	0.90040	63.2108
$\frac{7}{16}$	0.89134	60.6289	0.89596	61.9336	0.90054	63.2522
$\frac{15}{32}$	0.89149	60.6695	0.89611	61.9746	0.90068	63.2936
$\frac{1}{2}$	0.89163	60.7101	0.89625	62.0156	0.90082	63.3351
$\frac{17}{32}$	0.89178	60.7507	0.89639	62.0566	0.90096	63.3765
$\frac{9}{16}$	0.89192	60.7913	0.89654	62.0977	0.90111	63.4180
$\frac{19}{32}$	0.89207	60.8319	0.89668	62.1387	0.90125	63.4595
$\frac{5}{8}$	0.89221	60.8725	0.89682	62.1798	0.90139	63.5010
$\frac{21}{32}$	0.89236	60.9131	0.89697	62.2209	0.90153	63.5425
$\frac{11}{16}$	0.89250	60.9538	0.89711	62.2620	0.90167	63.5840
$\frac{23}{32}$	0.89265	60.9945	0.89725	62.3031	0.90182	63.6255
$\frac{3}{4}$	0.89279	61.0352	0.89740	62.3442	0.90196	63.6671
$\frac{25}{32}$	0.89293	61.0759	0.89754	62.3853	0.90210	63.7087
$\frac{13}{16}$	0.89308	61.1166	0.89768	62.4265	0.90224	63.7502
$\frac{27}{32}$	0.89322	61.1573	0.89783	62.4676	0.90238	63.7918
$\frac{7}{8}$	0.89337	61.1980	0.89797	62.5088	0.90252	63.8334
$\frac{29}{32}$	0.89351	61.2388	0.89811	62.5500	0.90267	63.8751
$\frac{15}{16}$	0.89366	61.2795	0.89826	62.5912	0.90281	63.9167
$\frac{31}{32}$	0.89380	61.3203	0.89840	62.6324	0.90295	63.9583
1	0.89395	61.3611	0.89854	62.6736	0.90309	64.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.90309	64.0000	0.90759	65.3403	0.91204	66.6944
$\frac{1}{64}$	0.90323	64.0417	0.90773	65.3824	0.91218	66.7370
$\frac{1}{32}$	0.90337	64.0834	0.90787	65.4245	0.91232	66.7795
$\frac{3}{64}$	0.90351	64.1251	0.90801	65.4666	0.91246	66.8221
$\frac{1}{8}$	0.90366	64.1668	0.90815	65.5088	0.91260	66.8647
$\frac{5}{64}$	0.90380	64.2085	0.90829	65.5510	0.91274	66.9073
$\frac{3}{16}$	0.90394	64.2502	0.90843	65.5931	0.91287	66.9499
$\frac{7}{64}$	0.90408	64.2920	0.90857	65.6353	0.91301	66.9925
$\frac{1}{4}$	0.90422	64.3338	0.90871	65.6775	0.91315	67.0352
$\frac{9}{64}$	0.90436	64.3755	0.90885	65.7197	0.91329	67.0778
$\frac{5}{16}$	0.90450	64.4173	0.90899	65.7620	0.91343	67.1205
$\frac{11}{64}$	0.90464	64.4592	0.90913	65.8042	0.91357	67.1631
$\frac{3}{8}$	0.90478	64.5010	0.90927	65.8465	0.91370	67.2058
$\frac{13}{64}$	0.90492	64.5428	0.90941	65.8887	0.91384	67.2485
$\frac{7}{16}$	0.90506	64.5847	0.90954	65.9310	0.91398	67.2913
$\frac{15}{64}$	0.90521	64.6265	0.90968	65.9733	0.91412	67.3340
$\frac{1}{2}$	0.90535	64.6684	0.90982	66.0156	0.91425	67.3767
$\frac{17}{64}$	0.90549	64.7103	0.90996	66.0579	0.91439	67.4195
$\frac{9}{16}$	0.90563	64.7522	0.91010	66.1008	0.91453	67.4623
$\frac{19}{64}$	0.90577	64.7941	0.91024	66.1428	0.91467	67.5051
$\frac{5}{8}$	0.90591	64.8360	0.91038	66.1850	0.91481	67.5479
$\frac{21}{64}$	0.90605	64.8780	0.91052	66.2274	0.91494	67.5907
$\frac{11}{16}$	0.90619	64.9199	0.91066	66.2698	0.91508	67.6335
$\frac{23}{64}$	0.90633	64.9619	0.91080	66.3122	0.91522	67.6763
$\frac{3}{4}$	0.90647	65.0039	0.91094	66.3546	0.91536	67.7192
$\frac{25}{64}$	0.90661	65.0459	0.91107	66.3970	0.91549	67.7621
$\frac{13}{16}$	0.90675	65.0879	0.91121	66.4395	0.91563	67.8049
$\frac{27}{64}$	0.90689	65.1299	0.91135	66.4819	0.91577	67.8478
$\frac{7}{8}$	0.90703	65.1720	0.91149	66.5244	0.91591	67.8907
$\frac{29}{64}$	0.90717	65.2140	0.91163	66.5669	0.91604	67.9337
$\frac{15}{16}$	0.90731	65.2561	0.91177	66.6094	0.91618	67.9766
$\frac{31}{64}$	0.90745	65.2982	0.91191	66.6519	0.91632	68.0195
1	0.90759	65.3403	0.91204	66.6944	0.91645	68.0625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.91645	68.0625	0.92082	69.4444	0.92514	70.8403
$\frac{1}{32}$	0.91659	68.1055	0.92095	69.4879	0.92527	70.8841
$\frac{1}{16}$	0.91673	68.1485	0.92109	69.5313	0.92541	70.9280
$\frac{3}{32}$	0.91687	68.1915	0.92123	69.5747	0.92554	70.9718
$\frac{1}{8}$	0.91700	68.2345	0.92136	69.6182	0.92568	71.0157
$\frac{5}{32}$	0.91714	68.2775	0.92150	69.6616	0.92581	71.0596
$\frac{3}{16}$	0.91728	68.3206	0.92163	69.7051	0.92595	71.1035
$\frac{7}{32}$	0.91741	68.3636	0.92177	69.7486	0.92608	71.1475
$\frac{1}{4}$	0.91755	68.4067	0.92190	69.7921	0.92621	71.1914
$\frac{9}{32}$	0.91769	68.4498	0.92204	69.8356	0.92635	71.2354
$\frac{5}{16}$	0.91782	68.4929	0.92217	69.8792	0.92648	71.2793
$\frac{11}{32}$	0.91796	68.5360	0.92231	69.9227	0.92662	71.3233
$\frac{3}{8}$	0.91810	68.5791	0.92244	69.9663	0.92675	71.3673
$\frac{13}{32}$	0.91823	68.6222	0.92258	70.0098	0.92688	71.4113
$\frac{7}{16}$	0.91837	68.6654	0.92271	70.0534	0.92702	71.4553
$\frac{15}{32}$	0.91851	68.7086	0.92285	70.0970	0.92715	71.4994
$\frac{1}{2}$	0.91864	68.7517	0.92298	70.1406	0.92728	71.5434
$\frac{17}{32}$	0.91878	68.7949	0.92312	70.1843	0.92742	71.5875
$\frac{9}{16}$	0.91891	68.8381	0.92325	70.2279	0.92755	71.6315
$\frac{19}{32}$	0.91905	68.8814	0.92339	70.2715	0.92769	71.6756
$\frac{5}{8}$	0.91919	68.9246	0.92352	70.3152	0.92782	71.7197
$\frac{21}{32}$	0.91932	68.9678	0.92366	70.3589	0.92795	71.7638
$\frac{11}{16}$	0.91946	69.0111	0.92379	70.4026	0.92809	71.8080
$\frac{23}{32}$	0.91960	69.0544	0.92393	70.4463	0.92822	71.8521
$\frac{3}{4}$	0.91973	69.0977	0.92406	70.4900	0.92835	71.8963
$\frac{25}{32}$	0.91987	69.1410	0.92420	70.5338	0.92849	71.9404
$\frac{13}{16}$	0.92000	69.1843	0.92433	70.5775	0.92862	71.9846
$\frac{27}{32}$	0.92014	69.2276	0.92447	70.6213	0.92875	72.0288
$\frac{7}{8}$	0.92028	69.2709	0.92460	70.6650	0.92889	72.0730
$\frac{29}{32}$	0.92041	69.3143	0.92474	70.7088	0.92902	72.1172
$\frac{15}{16}$	0.92055	69.3577	0.92487	70.7526	0.92915	72.1615
$\frac{31}{32}$	0.92068	69.4010	0.92501	70.7964	0.92929	72.2057
1	0.92082	69.4444	0.92514	70.8403	0.92942	72.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.92942	72.2500	0.93366	73.6736	0.93785	75.1111
$\frac{1}{32}$	0.92955	72.2943	0.93379	73.7183	0.93798	75.1563
$\frac{1}{16}$	0.92968	72.3386	0.93392	73.7630	0.93811	75.2014
$\frac{3}{32}$	0.92982	72.3829	0.93405	73.8078	0.93824	75.2466
$\frac{1}{8}$	0.92995	72.4272	0.93418	73.8525	0.93837	75.2918
$\frac{5}{32}$	0.93008	72.4715	0.93431	73.8973	0.93850	75.3370
$\frac{3}{16}$	0.93022	72.5159	0.93445	73.9421	0.93863	75.3822
$\frac{1}{4}$	0.93035	72.5602	0.93458	73.9869	0.93876	75.4274
$\frac{1}{2}$	0.93048	72.6046	0.93471	74.0317	0.93889	75.4727
$\frac{5}{8}$	0.93061	72.6490	0.93484	74.0765	0.93903	75.5179
$\frac{3}{4}$	0.93075	72.6934	0.93497	74.1213	0.93916	75.5632
$\frac{11}{16}$	0.93088	72.7378	0.93510	74.1662	0.93929	75.6085
$\frac{3}{8}$	0.93101	72.7822	0.93523	74.2110	0.93942	75.6538
$\frac{13}{16}$	0.93115	72.8267	0.93537	74.2559	0.93955	75.6991
$\frac{7}{8}$	0.93128	72.8711	0.93550	74.3008	0.93968	75.7444
$\frac{15}{16}$	0.93141	72.9156	0.93563	74.3457	0.93981	75.7897
$\frac{1}{2}$	0.93154	72.9601	0.93576	74.3906	0.93994	75.8351
$\frac{17}{32}$	0.93168	73.0046	0.93589	74.4356	0.94006	75.8804
$\frac{9}{16}$	0.93181	73.0491	0.93602	74.4805	0.94019	75.9258
$\frac{19}{32}$	0.93194	73.0936	0.93615	74.5255	0.94032	75.9712
$\frac{5}{8}$	0.93207	73.1381	0.93628	74.5704	0.94045	76.0166
$\frac{21}{32}$	0.93220	73.1827	0.93641	74.6154	0.94058	76.0620
$\frac{11}{16}$	0.93234	73.2272	0.93655	74.6604	0.94071	76.1074
$\frac{23}{32}$	0.93247	73.2718	0.93668	74.7054	0.94084	76.1529
$\frac{3}{4}$	0.93260	73.3164	0.93681	74.7504	0.94097	76.1984
$\frac{25}{32}$	0.93273	73.3610	0.93694	74.7955	0.94110	76.2438
$\frac{13}{16}$	0.93286	73.4056	0.93707	74.8405	0.94123	76.2893
$\frac{27}{32}$	0.93300	73.4503	0.93720	74.8856	0.94136	76.3348
$\frac{7}{8}$	0.93313	73.4949	0.93733	74.9307	0.94149	76.3803
$\frac{29}{32}$	0.93326	73.5396	0.93746	74.9758	0.94162	76.4258
$\frac{15}{16}$	0.93339	73.5842	0.93759	75.0209	0.94175	76.4714
$\frac{31}{32}$	0.93352	73.6289	0.93772	75.0660	0.94188	76.5169
1	0.93366	73.6736	0.93785	75.1111	0.94201	76.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.94201	76.5625	0.94612	78.0278	0.95020	79.5069
$\frac{1}{32}$	0.94214	76.6081	0.94625	78.0738	0.95033	79.5534
$\frac{1}{16}$	0.94227	76.6537	0.94638	78.1198	0.95046	79.5999
$\frac{3}{32}$	0.94240	76.6993	0.94651	78.1659	0.95058	79.6463
$\frac{1}{8}$	0.94252	76.7449	0.94664	78.2119	0.95071	79.6928
$\frac{5}{32}$	0.94265	76.7905	0.94676	78.2580	0.95084	79.7393
$\frac{3}{16}$	0.94278	76.8362	0.94689	78.3041	0.95096	79.7858
$\frac{7}{32}$	0.94291	76.8818	0.94702	78.3502	0.95109	79.8324
$\frac{1}{4}$	0.94304	76.9275	0.94715	78.3963	0.95122	79.8789
$\frac{9}{32}$	0.94317	76.9732	0.94728	78.4424	0.95134	79.9255
$\frac{5}{16}$	0.94330	77.0189	0.94740	78.4885	0.95147	79.9720
$\frac{11}{32}$	0.94343	77.0646	0.94753	78.5347	0.95160	80.0186
$\frac{3}{8}$	0.94356	77.1104	0.94766	78.5808	0.95172	80.0652
$\frac{13}{32}$	0.94369	77.1561	0.94779	78.6270	0.95185	80.1118
$\frac{7}{16}$	0.94381	77.2018	0.94791	78.6732	0.95197	80.1584
$\frac{15}{32}$	0.94394	77.2476	0.94804	78.7194	0.95210	80.2051
$\frac{1}{2}$	0.94407	77.2934	0.94817	78.7656	0.95223	80.2517
$\frac{17}{32}$	0.94420	77.3392	0.94830	78.8119	0.95235	80.2984
$\frac{9}{16}$	0.94433	77.3850	0.94842	78.8581	0.95248	80.3451
$\frac{19}{32}$	0.94446	77.4308	0.94855	78.9044	0.95261	80.3918
$\frac{5}{8}$	0.94459	77.4767	0.94868	78.9506	0.95273	80.4385
$\frac{21}{32}$	0.94471	77.5225	0.94881	78.9969	0.95286	80.4852
$\frac{11}{16}$	0.94484	77.5684	0.94893	79.0432	0.95298	80.5319
$\frac{23}{32}$	0.94497	77.6143	0.94906	79.0895	0.95311	80.5787
$\frac{3}{4}$	0.94510	77.6602	0.94919	79.1359	0.95324	80.6254
$\frac{25}{32}$	0.94523	77.7061	0.94931	79.1822	0.95336	80.6722
$\frac{13}{16}$	0.94536	77.7520	0.94944	79.2285	0.95349	80.7190
$\frac{27}{32}$	0.94548	77.7979	0.94957	79.2749	0.95361	80.7658
$\frac{7}{8}$	0.94561	77.8439	0.94969	79.3213	0.95374	80.8126
$\frac{29}{32}$	0.94574	77.8898	0.94982	79.3677	0.95387	80.8594
$\frac{15}{16}$	0.94587	77.9358	0.94995	79.4141	0.95399	80.9063
$\frac{31}{32}$	0.94600	77.9818	0.95008	79.4605	0.95412	80.9531
1	0.94612	78.0278	0.95020	79.5069	0.95424	81.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.95424	81.0000	0.95825	82.5069	0.96221	84.0278
$\frac{1}{32}$	0.95437	81.0469	0.95837	82.5543	0.96233	84.0755
$\frac{1}{16}$	0.95449	81.0938	0.95849	82.6016	0.96246	84.1233
$\frac{3}{32}$	0.95462	81.1407	0.95862	82.6489	0.96258	84.1711
$\frac{1}{8}$	0.95474	81.1876	0.95874	82.6963	0.96270	84.2189
$\frac{5}{32}$	0.95487	81.2345	0.95887	82.7437	0.96283	84.2667
$\frac{3}{16}$	0.95500	81.2815	0.95899	82.7910	0.96295	84.3145
$\frac{7}{32}$	0.95512	81.3285	0.95912	82.8384	0.96307	84.3623
$\frac{1}{4}$	0.95525	81.3754	0.95924	82.8859	0.96320	84.4102
$\frac{9}{32}$	0.95537	81.4224	0.95936	82.9333	0.96332	84.4580
$\frac{5}{16}$	0.95550	81.4694	0.95949	82.9807	0.96344	84.5059
$\frac{11}{32}$	0.95562	81.5164	0.95961	83.0282	0.96357	84.5538
$\frac{3}{8}$	0.95575	81.5635	0.95974	83.0756	0.96369	84.6017
$\frac{13}{32}$	0.95587	81.6105	0.95986	83.1231	0.96381	84.6496
$\frac{7}{16}$	0.95600	81.6576	0.95998	83.1706	0.96394	84.6975
$\frac{15}{32}$	0.95612	81.7047	0.96011	83.2181	0.96406	84.7454
$\frac{1}{2}$	0.95625	81.7517	0.96023	83.2656	0.96418	84.7934
$\frac{17}{32}$	0.95637	81.7988	0.96036	83.3132	0.96430	84.8414
$\frac{9}{16}$	0.95650	81.8459	0.96048	83.3607	0.96443	84.8894
$\frac{19}{32}$	0.95662	81.8931	0.96060	83.4083	0.96455	84.9373
$\frac{5}{8}$	0.95675	81.9402	0.96073	83.4558	0.96467	84.9854
$\frac{21}{32}$	0.95687	81.9874	0.96085	83.5034	0.96479	85.0334
$\frac{11}{16}$	0.95700	82.0345	0.96098	83.5510	0.96492	85.0814
$\frac{23}{32}$	0.95712	82.0817	0.96110	83.5986	0.96504	85.1295
$\frac{3}{4}$	0.95725	82.1289	0.96122	83.6463	0.96516	85.1775
$\frac{25}{32}$	0.95737	82.1761	0.96135	83.6939	0.96529	85.2256
$\frac{13}{16}$	0.95750	82.2233	0.96147	83.7416	0.96541	85.2737
$\frac{27}{32}$	0.95762	82.2706	0.96159	83.7892	0.96553	85.3218
$\frac{7}{8}$	0.95775	82.3178	0.96172	83.8369	0.96565	85.3699
$\frac{29}{32}$	0.95787	82.3651	0.96184	83.8846	0.96577	85.4180
$\frac{15}{16}$	0.95800	82.4124	0.96196	83.9323	0.96590	85.4662
$\frac{31}{32}$	0.95812	82.4596	0.96209	83.9800	0.96602	85.5143
1	0.95825	82.5069	0.96221	84.0278	0.96614	85.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.96614	85.5625	0.97004	87.1111	0.97390	88.6736
$\frac{1}{32}$	0.96626	85.6107	0.97016	87.1597	0.97402	88.7227
$\frac{1}{16}$	0.96639	85.6589	0.97028	87.2084	0.97414	88.7717
$\frac{3}{32}$	0.96651	85.7071	0.97040	87.2570	0.97426	88.8208
$\frac{1}{8}$	0.96663	85.7553	0.97052	87.3057	0.97438	88.8699
$\frac{5}{32}$	0.96675	85.8036	0.97064	87.3543	0.97450	88.9190
$\frac{3}{16}$	0.96687	85.8518	0.97076	87.4030	0.97462	88.9681
$\frac{7}{32}$	0.96700	85.9001	0.97088	87.4517	0.97474	89.0173
$\frac{1}{4}$	0.96712	85.9484	0.97101	87.5004	0.97486	89.0664
$\frac{9}{32}$	0.96724	85.9966	0.97113	87.5492	0.97498	89.1156
$\frac{5}{16}$	0.96736	86.0449	0.97125	87.5979	0.97510	89.1647
$\frac{11}{32}$	0.96748	86.0933	0.97137	87.6467	0.97522	89.2139
$\frac{3}{8}$	0.96761	86.1416	0.97149	87.6954	0.97534	89.2631
$\frac{13}{32}$	0.96773	86.1899	0.97161	87.7442	0.97546	89.3123
$\frac{7}{16}$	0.96785	86.2383	0.97173	87.7930	0.97558	89.3616
$\frac{15}{32}$	0.96797	86.2867	0.97185	87.8418	0.97570	89.4108
$\frac{1}{2}$	0.96809	86.3351	0.97197	87.8906	0.97581	89.4601
$\frac{17}{32}$	0.96822	86.3835	0.97209	87.9395	0.97593	89.5093
$\frac{9}{16}$	0.96834	86.4319	0.97221	87.9883	0.97605	89.5586
$\frac{19}{32}$	0.96846	86.4803	0.97233	88.0372	0.97617	89.6079
$\frac{5}{8}$	0.96858	86.5288	0.97245	88.0860	0.97629	89.6572
$\frac{21}{32}$	0.96870	86.5772	0.97257	88.1349	0.97641	89.7065
$\frac{11}{16}$	0.96882	86.6257	0.97269	88.1838	0.97653	89.7559
$\frac{23}{32}$	0.96894	86.6742	0.97281	88.2328	0.97665	89.8052
$\frac{3}{4}$	0.96907	86.7227	0.97294	88.2817	0.97677	89.8546
$\frac{25}{32}$	0.96919	86.7712	0.97306	88.3306	0.97689	89.9040
$\frac{13}{16}$	0.96931	86.8197	0.97318	88.3796	0.97701	89.9534
$\frac{27}{32}$	0.96943	86.8682	0.97330	88.4286	0.97713	90.0028
$\frac{7}{8}$	0.96955	86.9168	0.97342	88.4775	0.97725	90.0522
$\frac{29}{32}$	0.96967	86.9653	0.97354	88.5265	0.97737	90.1016
$\frac{15}{16}$	0.96979	87.0139	0.97366	88.5755	0.97749	90.1511
$\frac{31}{32}$	0.96992	87.0625	0.97378	88.6246	0.97760	90.2005
1	0.97004	87.1111	0.97390	88.6736	0.97772	90.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.97772	90.2500	0.98152	91.8403	0.98528	93.4444
$\frac{1}{32}$	0.97784	90.2985	0.98163	91.8902	0.98539	93.4948
$\frac{1}{16}$	0.97796	90.3490	0.98175	91.9401	0.98551	93.5452
$\frac{3}{32}$	0.97808	90.3985	0.98187	91.9901	0.98563	93.5955
$\frac{1}{8}$	0.97820	90.4480	0.98199	92.0400	0.98574	93.6459
$\frac{5}{32}$	0.97832	90.4976	0.98211	92.0900	0.98586	93.6963
$\frac{3}{16}$	0.97844	90.5471	0.98222	92.1400	0.98598	93.7468
$\frac{7}{32}$	0.97856	90.5967	0.98234	92.1900	0.98609	93.7972
$\frac{1}{4}$	0.97867	90.6463	0.98246	92.2400	0.98621	93.8477
$\frac{9}{32}$	0.97879	90.6959	0.98258	92.2900	0.98633	93.8981
$\frac{5}{16}$	0.97891	90.7455	0.98270	92.3401	0.98645	93.9486
$\frac{11}{32}$	0.97903	90.7951	0.98281	92.3901	0.98656	93.9991
$\frac{3}{8}$	0.97915	90.8447	0.98293	92.4402	0.98668	94.0496
$\frac{13}{32}$	0.97927	90.8944	0.98305	92.4903	0.98680	94.1001
$\frac{7}{16}$	0.97939	90.9440	0.98317	92.5404	0.98691	94.1506
$\frac{15}{32}$	0.97951	90.9937	0.98328	92.5905	0.98703	94.2012
$\frac{1}{2}$	0.97962	91.0434	0.98340	92.6406	0.98714	94.2517
$\frac{17}{32}$	0.97974	91.0931	0.98352	92.6908	0.98726	94.3023
$\frac{9}{16}$	0.97986	91.1428	0.98364	92.7409	0.98738	94.3529
$\frac{19}{32}$	0.97998	91.1926	0.98375	92.7911	0.98749	94.4035
$\frac{5}{8}$	0.98010	91.2423	0.98387	92.8413	0.98761	94.4541
$\frac{21}{32}$	0.98022	91.2921	0.98399	92.8914	0.98773	94.5047
$\frac{11}{16}$	0.98033	91.3418	0.98411	92.9417	0.98784	94.5554
$\frac{23}{32}$	0.98045	91.3916	0.98422	92.9919	0.98796	94.6060
$\frac{3}{4}$	0.98057	91.4414	0.98434	93.0421	0.98808	94.6567
$\frac{25}{32}$	0.98069	91.4912	0.98446	93.0923	0.98819	94.7074
$\frac{13}{16}$	0.98081	91.5410	0.98457	93.1426	0.98831	94.7581
$\frac{27}{32}$	0.98093	91.5909	0.98469	93.1929	0.98842	94.8088
$\frac{7}{8}$	0.98104	91.6407	0.98481	93.2432	0.98854	94.8595
$\frac{29}{32}$	0.98116	91.6906	0.98493	93.2935	0.98866	94.9102
$\frac{15}{16}$	0.98128	91.7405	0.98504	93.3438	0.98877	94.9610
$\frac{31}{32}$	0.98140	91.7904	0.98516	93.3941	0.98889	95.0117
1	0.98152	91.8403	0.98528	93.4444	0.98900	95.0625

## 9'

Fractions of an inch	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	0.98900	95.0625	0.99270	96.6944	0.99637	98.3403
$\frac{1}{32}$	0.98912	95.1133	0.99282	96.7457	0.99648	98.3919
$\frac{1}{16}$	0.98924	95.1641	0.99293	96.7969	0.99659	98.4436
$\frac{3}{32}$	0.98935	95.2149	0.99305	96.8482	0.99671	98.4953
$\frac{1}{8}$	0.98947	95.2657	0.99316	96.8994	0.99682	98.5470
$\frac{5}{32}$	0.98958	95.3166	0.99328	96.9507	0.99694	98.5987
$\frac{3}{16}$	0.98970	95.3674	0.99339	97.0020	0.99705	98.6504
$\frac{7}{32}$	0.98982	95.4183	0.99351	97.0533	0.99716	98.7022
$\frac{1}{4}$	0.98993	95.4692	0.99362	97.1046	0.99727	98.7539
$\frac{9}{32}$	0.99005	95.5201	0.99373	97.1559	0.99739	98.8057
$\frac{5}{16}$	0.99016	95.5710	0.99385	97.2073	0.99750	98.8574
$\frac{11}{32}$	0.99028	95.6219	0.99396	97.2586	0.99762	98.9092
$\frac{3}{8}$	0.99039	95.6729	0.99408	97.3100	0.99773	98.9610
$\frac{13}{32}$	0.99051	95.7238	0.99419	97.3614	0.99785	99.0129
$\frac{7}{16}$	0.99063	95.7748	0.99431	97.4128	0.99796	99.0647
$\frac{15}{32}$	0.99074	95.8257	0.99442	97.4642	0.99807	99.1165
$\frac{1}{2}$	0.99086	95.8767	0.99454	97.5156	0.99819	99.1684
$\frac{17}{32}$	0.99097	95.9277	0.99465	97.5671	0.99830	99.2203
$\frac{9}{16}$	0.99109	95.9788	0.99477	97.6185	0.99841	99.2722
$\frac{19}{32}$	0.99120	96.0298	0.99488	97.6700	0.99853	99.3241
$\frac{5}{8}$	0.99132	96.0808	0.99499	97.7215	0.99864	99.3760
$\frac{21}{32}$	0.99143	96.1319	0.99511	97.7730	0.99875	99.4279
$\frac{11}{16}$	0.99155	96.1830	0.99522	97.8245	0.99887	99.4798
$\frac{23}{32}$	0.99166	96.2341	0.99534	97.8760	0.99898	99.5318
$\frac{3}{4}$	0.99178	96.2852	0.99545	97.9275	0.99909	99.5838
$\frac{25}{32}$	0.99189	96.3363	0.99557	97.9791	0.99921	99.6357
$\frac{13}{16}$	0.99201	96.3874	0.99568	98.0306	0.99932	99.6877
$\frac{27}{32}$	0.99213	96.4385	0.99580	98.0822	0.99943	99.7396
$\frac{7}{8}$	0.99224	96.4897	0.99591	98.1338	0.99955	99.7918
$\frac{29}{32}$	0.99236	96.5409	0.99602	98.1854	0.99966	99.8438
$\frac{15}{16}$	0.99247	96.5920	0.99614	98.2370	0.99977	99.8959
$\frac{31}{32}$	0.99259	96.6432	0.99625	98.2886	0.99989	99.9479
1	0.99270	96.6944	0.99637	98.3403	1.00000	100.0000

# 10'

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.00000	100.0000	1.00360	101.6736	1.00718	103.3611
$\frac{1}{32}$	1.00011	100.0521	1.00372	101.7261	1.00729	103.4141
$\frac{1}{16}$	1.00023	100.1042	1.00383	101.7787	1.00740	103.4670
$\frac{3}{32}$	1.00034	100.1563	1.00394	101.8312	1.00751	103.5200
$\frac{1}{8}$	1.00045	100.2084	1.00405	101.8838	1.00762	103.5730
$\frac{5}{32}$	1.00057	100.2606	1.00416	101.9364	1.00773	103.6260
$\frac{3}{16}$	1.00068	100.3127	1.00428	101.9890	1.00785	103.6791
$\frac{7}{32}$	1.00079	100.3649	1.00439	102.0416	1.00796	103.7321
$\frac{1}{4}$	1.00090	100.4171	1.00450	102.0942	1.00807	103.7852
$\frac{9}{32}$	1.00102	100.4693	1.00461	102.1468	1.00818	103.8382
$\frac{5}{16}$	1.00113	100.5215	1.00472	102.1995	1.00829	103.8913
$\frac{11}{32}$	1.00124	100.5737	1.00484	102.2521	1.00840	103.9444
$\frac{3}{8}$	1.00136	100.6260	1.00495	102.3048	1.00851	103.9975
$\frac{13}{32}$	1.00147	100.6782	1.00506	102.3575	1.00862	104.0506
$\frac{7}{16}$	1.00158	100.7305	1.00517	102.4102	1.00873	104.1038
$\frac{15}{32}$	1.00169	100.7828	1.00528	102.4629	1.00884	104.1569
$\frac{1}{2}$	1.00181	100.8351	1.00540	102.5156	1.00895	104.2101
$\frac{17}{32}$	1.00192	100.8874	1.00551	102.5684	1.00907	104.2632
$\frac{9}{16}$	1.00203	100.9397	1.00562	102.6211	1.00918	104.3164
$\frac{19}{32}$	1.00214	100.9920	1.00573	102.6739	1.00929	104.3696
$\frac{5}{8}$	1.00226	101.0444	1.00584	102.7267	1.00940	104.4229
$\frac{21}{32}$	1.00237	101.0967	1.00595	102.7795	1.00951	104.4761
$\frac{11}{16}$	1.00248	101.1491	1.00606	102.8323	1.00962	104.5293
$\frac{23}{32}$	1.00259	101.2015	1.00618	102.8851	1.00973	104.5826
$\frac{3}{4}$	1.00271	101.2539	1.00629	102.9379	1.00984	104.6359
$\frac{25}{32}$	1.00282	101.3063	1.00640	102.9908	1.00995	104.6891
$\frac{13}{16}$	1.00293	101.3588	1.00651	103.0436	1.01006	104.7424
$\frac{27}{32}$	1.00304	101.4112	1.00662	103.0965	1.01017	104.7957
$\frac{7}{8}$	1.00316	101.4636	1.00673	103.1494	1.01028	104.8491
$\frac{29}{32}$	1.00327	101.5161	1.00684	103.2023	1.01039	104.9024
$\frac{15}{16}$	1.00338	101.5686	1.00696	103.2552	1.01050	104.9558
$\frac{31}{32}$	1.00349	101.6211	1.00707	103.3082	1.01061	105.0091
1	1.00360	101.6736	1.00718	103.3611	1.01072	105.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.01072	105.0625	1.01424	106.7778	1.01773	108.5069
$\frac{1}{32}$	1.01083	105.1159	1.01435	106.8316	1.01784	108.5612
$\frac{1}{16}$	1.01094	105.1693	1.01446	106.8854	1.01795	108.6155
$\frac{3}{32}$	1.01105	105.2227	1.01457	106.9393	1.01805	108.6698
$\frac{1}{8}$	1.01116	105.2762	1.01468	106.9932	1.01816	108.7241
$\frac{5}{32}$	1.01128	105.3296	1.01479	107.0470	1.01827	108.7784
$\frac{3}{16}$	1.01139	105.3831	1.01490	107.1009	1.01838	108.8327
$\frac{7}{32}$	1.01150	105.4365	1.01501	107.1548	1.01849	108.8871
$\frac{1}{4}$	1.01161	105.4900	1.01512	107.2088	1.01860	108.9414
$\frac{9}{32}$	1.01172	105.5435	1.01522	107.2627	1.01870	108.9958
$\frac{5}{16}$	1.01183	105.5970	1.01533	107.3167	1.01881	109.0502
$\frac{11}{32}$	1.01194	105.6506	1.01544	107.3706	1.01892	109.1046
$\frac{3}{8}$	1.01205	105.7041	1.01555	107.4246	1.01903	109.1590
$\frac{13}{32}$	1.01216	105.7577	1.01566	107.4786	1.01914	109.2134
$\frac{7}{16}$	1.01227	105.8112	1.01577	107.5326	1.01925	109.2678
$\frac{15}{32}$	1.01238	105.8648	1.01588	107.5866	1.01935	109.3223
$\frac{1}{2}$	1.01249	105.9184	1.01599	107.6406	1.01946	109.3767
$\frac{17}{32}$	1.01260	105.9720	1.01610	107.6947	1.01957	109.4312
$\frac{9}{16}$	1.01271	106.0256	1.01621	107.7487	1.01968	109.4857
$\frac{19}{32}$	1.01282	106.0793	1.01632	107.8028	1.01979	109.5402
$\frac{5}{8}$	1.01293	106.1329	1.01642	107.8569	1.01989	109.5947
$\frac{21}{32}$	1.01303	106.1866	1.01653	107.9110	1.02000	109.6493
$\frac{11}{16}$	1.01314	106.2403	1.01664	107.9651	1.02011	109.7038
$\frac{23}{32}$	1.01325	106.2940	1.01675	108.0192	1.02022	109.7584
$\frac{3}{4}$	1.01336	106.3477	1.01686	108.0734	1.02033	109.8129
$\frac{25}{32}$	1.01347	106.4014	1.01697	108.1275	1.02043	109.8675
$\frac{13}{16}$	1.01358	106.4551	1.01708	108.1817	1.02054	109.9221
$\frac{27}{32}$	1.01369	106.5088	1.01719	108.2358	1.02065	109.9767
$\frac{7}{8}$	1.01380	106.5626	1.01729	108.2900	1.02076	110.0314
$\frac{29}{32}$	1.01391	106.6164	1.01740	108.3442	1.02087	110.0860
$\frac{15}{16}$	1.01402	106.6702	1.01751	108.3985	1.02097	110.1407
$\frac{31}{32}$	1.01413	106.7240	1.01762	108.4527	1.02108	110.1953
1	1.01424	106.7778	1.01773	108.5069	1.02119	110.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.02119	110.2500	1.02462	112.0069	1.02803	113.7778
$\frac{1}{32}$	1.02130	110.3047	1.02473	112.0621	1.02813	113.8333
$\frac{1}{16}$	1.02140	110.3594	1.02484	112.1172	1.02824	113.8889
$\frac{3}{32}$	1.02151	110.4141	1.02494	112.1724	1.02835	113.9445
$\frac{1}{8}$	1.02162	110.4689	1.02505	112.2275	1.02845	114.0001
$\frac{5}{32}$	1.02173	110.5236	1.02516	112.2827	1.02856	114.0557
$\frac{3}{16}$	1.02184	110.5784	1.02526	112.3379	1.02866	114.1114
$\frac{7}{32}$	1.02194	110.6331	1.02537	112.3931	1.02877	114.1670
$\frac{1}{4}$	1.02205	110.6879	1.02548	112.4484	1.02888	114.2227
$\frac{9}{32}$	1.02216	110.7427	1.02558	112.5036	1.02898	114.2783
$\frac{5}{16}$	1.02227	110.7976	1.02569	112.5588	1.02909	114.3340
$\frac{11}{32}$	1.02237	110.8524	1.02580	112.6141	1.02919	114.3897
$\frac{3}{8}$	1.02248	110.9072	1.02590	112.6694	1.02930	114.4454
$\frac{13}{32}$	1.02259	110.9621	1.02601	112.7247	1.02940	114.5011
$\frac{7}{16}$	1.02269	111.0170	1.02612	112.7800	1.02951	114.5568
$\frac{15}{32}$	1.02280	111.0718	1.02622	112.8353	1.02962	114.6126
$\frac{1}{2}$	1.02291	111.1267	1.02633	112.8906	1.02972	114.6684
$\frac{17}{32}$	1.02302	111.1816	1.02644	112.9460	1.02983	114.7242
$\frac{9}{16}$	1.02312	111.2366	1.02654	113.0013	1.02993	114.7800
$\frac{19}{32}$	1.02323	111.2915	1.02665	113.0567	1.03004	114.8358
$\frac{5}{8}$	1.02334	111.3465	1.02675	113.1121	1.03014	114.8916
$\frac{21}{32}$	1.02345	111.4014	1.02686	113.1675	1.03025	114.9474
$\frac{11}{16}$	1.02355	111.4564	1.02697	113.2229	1.03036	115.0033
$\frac{23}{32}$	1.02366	111.5114	1.02707	113.2783	1.03046	115.0591
$\frac{3}{4}$	1.02377	111.5664	1.02718	113.3338	1.03057	115.1150
$\frac{25}{32}$	1.02387	111.6214	1.02729	113.3892	1.03067	115.1709
$\frac{13}{16}$	1.02398	111.6765	1.02739	113.4447	1.03078	115.2268
$\frac{27}{32}$	1.02409	111.7315	1.02750	113.5002	1.03088	115.2827
$\frac{7}{8}$	1.02419	111.7866	1.02760	113.5557	1.03099	115.3386
$\frac{29}{32}$	1.02430	111.8416	1.02771	113.6112	1.03109	115.3946
$\frac{15}{16}$	1.02441	111.8967	1.02782	113.6667	1.03120	115.4505
$\frac{31}{32}$	1.02452	111.9518	1.02792	113.7222	1.03130	115.5065
1	1.02462	112.0069	1.02803	113.7778	1.03141	115.5625

# 10'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.03141	115.5625	1.03476	117.3611	1.03809	119.1736
$\frac{1}{32}$	1.03151	115.6185	1.03487	117.4175	1.03819	119.2305
$\frac{1}{16}$	1.03162	115.6745	1.03497	117.4740	1.03830	119.2874
$\frac{3}{32}$	1.03172	115.7305	1.03508	117.5304	1.03840	119.3442
$\frac{1}{8}$	1.03183	115.7866	1.03518	117.5869	1.03850	119.4012
$\frac{5}{32}$	1.03193	115.8426	1.03528	117.6434	1.03861	119.4581
$\frac{3}{16}$	1.03204	115.8987	1.03539	117.6999	1.03871	119.5150
$\frac{7}{32}$	1.03214	115.9548	1.03549	117.7564	1.03881	119.5719
$\frac{1}{4}$	1.03225	116.0109	1.03560	117.8129	1.03892	119.6289
$\frac{9}{32}$	1.03235	116.0670	1.03570	117.8695	1.03902	119.6859
$\frac{5}{16}$	1.03246	116.1231	1.03580	117.9260	1.03912	119.7429
$\frac{11}{32}$	1.03256	116.1792	1.03591	117.9826	1.03923	119.7999
$\frac{3}{8}$	1.03267	116.2354	1.03601	118.0392	1.03933	119.8569
$\frac{13}{32}$	1.03277	116.2915	1.03612	118.0958	1.03943	119.9139
$\frac{7}{16}$	1.03288	116.3477	1.03622	118.1524	1.03954	119.9709
$\frac{15}{32}$	1.03298	116.4039	1.03633	118.2090	1.03964	120.0280
$\frac{1}{2}$	1.03309	116.4601	1.03643	118.2656	1.03974	120.0851
$\frac{17}{32}$	1.03319	116.5163	1.03653	118.3223	1.03985	120.1422
$\frac{9}{16}$	1.03330	116.5725	1.03664	118.3789	1.03995	120.1992
$\frac{19}{32}$	1.03340	116.6288	1.03674	118.4356	1.04005	120.2564
$\frac{5}{8}$	1.03351	116.6850	1.03685	118.4923	1.04016	120.3135
$\frac{21}{32}$	1.03361	116.7413	1.03695	118.5490	1.04026	120.3706
$\frac{11}{16}$	1.03372	116.7976	1.03705	118.6057	1.04036	120.4278
$\frac{23}{32}$	1.03382	116.8538	1.03716	118.6624	1.04047	120.4849
$\frac{3}{4}$	1.03393	116.9102	1.03726	118.7192	1.04057	120.5421
$\frac{25}{32}$	1.03403	116.9665	1.03736	118.7759	1.04067	120.5993
$\frac{13}{16}$	1.03414	117.0228	1.03747	118.8327	1.04078	120.6565
$\frac{27}{32}$	1.03424	117.0792	1.03757	118.8895	1.04088	120.7137
$\frac{7}{8}$	1.03434	117.1355	1.03768	118.9463	1.04098	120.7709
$\frac{29}{32}$	1.03445	117.1919	1.03778	119.0031	1.04108	120.8282
$\frac{15}{16}$	1.03455	117.2483	1.03788	119.0599	1.04119	120.8854
$\frac{31}{32}$	1.03466	117.3047	1.03799	119.1168	1.04129	120.9427
1	1.03476	117.3611	1.03809	119.1736	1.04139	121.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.04139	121.0000	1.04467	122.8403	1.04792	124.6944
$\frac{1}{32}$	1.04150	121.0573	1.04477	122.8980	1.04802	124.7526
$\frac{1}{16}$	1.04160	121.1146	1.04487	122.9558	1.04813	124.8108
$\frac{3}{32}$	1.04170	121.1719	1.04498	123.0135	1.04823	124.8690
$\frac{1}{8}$	1.04180	121.2293	1.04508	123.0713	1.04833	124.9272
$\frac{5}{32}$	1.04191	121.2866	1.04518	123.1291	1.04843	124.9854
$\frac{3}{16}$	1.04201	121.3440	1.04528	123.1869	1.04853	125.0436
$\frac{7}{32}$	1.04211	121.4014	1.04538	123.2447	1.04863	125.1019
$\frac{1}{4}$	1.04221	121.4588	1.04549	123.3025	1.04873	125.1602
$\frac{9}{32}$	1.04232	121.5162	1.04559	123.3604	1.04883	125.2184
$\frac{5}{16}$	1.04242	121.5736	1.04569	123.4182	1.04894	125.2767
$\frac{11}{32}$	1.04252	121.6310	1.04579	123.4761	1.04904	125.3350
$\frac{3}{8}$	1.04262	121.6885	1.04589	123.5340	1.04914	125.3933
$\frac{13}{32}$	1.04273	121.7459	1.04599	123.5919	1.04924	125.4517
$\frac{7}{16}$	1.04283	121.8034	1.04610	123.6498	1.04934	125.5100
$\frac{15}{32}$	1.04293	121.8609	1.04620	123.7077	1.04944	125.5684
$\frac{1}{2}$	1.04303	121.9184	1.04630	123.7656	1.04954	125.6267
$\frac{17}{32}$	1.04314	121.9759	1.04640	123.8236	1.04964	125.6851
$\frac{9}{16}$	1.04324	122.0334	1.04650	123.8815	1.04974	125.7435
$\frac{19}{32}$	1.04334	122.0910	1.04660	123.9395	1.04984	125.8019
$\frac{5}{8}$	1.04344	122.1485	1.04671	123.9975	1.04994	125.8604
$\frac{21}{32}$	1.04355	122.2061	1.04681	124.0555	1.05005	125.9188
$\frac{11}{16}$	1.04365	122.2637	1.04691	124.1135	1.05015	125.9772
$\frac{23}{32}$	1.04375	122.3213	1.04701	124.1716	1.05025	126.0357
$\frac{3}{4}$	1.04385	122.3789	1.04711	124.2296	1.05035	126.0942
$\frac{25}{32}$	1.04396	122.4365	1.04721	124.2877	1.05045	126.1527
$\frac{13}{16}$	1.04406	122.4942	1.04732	124.3457	1.05055	126.2112
$\frac{27}{32}$	1.04416	122.5518	1.04742	124.4038	1.05065	126.2697
$\frac{7}{8}$	1.04426	122.6095	1.04752	124.4619	1.05075	126.3282
$\frac{29}{32}$	1.04436	122.6672	1.04762	124.5200	1.05085	126.3868
$\frac{15}{16}$	1.04447	122.7249	1.04772	124.5782	1.05095	126.4453
$\frac{31}{32}$	1.04457	122.7826	1.04782	124.6363	1.05105	126.5039
1	1.04467	122.8403	1.04792	124.6944	1.05115	126.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.05115	128.5625	1.05436	128.4444	1.05754	130.3408
$\frac{1}{32}$	1.05125	128.6211	1.05446	128.5035	1.05764	130.3997
$\frac{1}{16}$	1.05135	128.6797	1.05456	128.5625	1.05774	130.4592
$\frac{3}{32}$	1.05145	128.7383	1.05466	128.6216	1.05784	130.5187
$\frac{1}{8}$	1.05155	128.7970	1.05476	128.6807	1.05794	130.5782
$\frac{5}{32}$	1.05165	128.8556	1.05486	128.7398	1.05803	130.6378
$\frac{3}{16}$	1.05176	128.9143	1.05496	128.7989	1.05813	130.6973
$\frac{7}{32}$	1.05186	128.9730	1.05506	128.8580	1.05823	130.7568
$\frac{1}{4}$	1.05196	129.0317	1.05516	128.9171	1.05833	130.8164
$\frac{9}{32}$	1.05206	129.0904	1.05525	128.9762	1.05843	130.8760
$\frac{5}{16}$	1.05216	129.1491	1.05535	129.0354	1.05853	130.9356
$\frac{11}{32}$	1.05226	129.2079	1.05545	129.0946	1.05863	130.9952
$\frac{3}{8}$	1.05236	129.2666	1.05555	129.1538	1.05873	131.0548
$\frac{13}{32}$	1.05246	129.3254	1.05565	129.2130	1.05883	131.1144
$\frac{7}{16}$	1.05256	129.3841	1.05575	129.2722	1.05892	131.1741
$\frac{15}{32}$	1.05266	129.4429	1.05585	129.3314	1.05902	131.2337
$\frac{1}{2}$	1.05276	129.5017	1.05595	129.3906	1.05912	131.2934
$\frac{17}{32}$	1.05286	129.5606	1.05605	129.4499	1.05922	131.3531
$\frac{9}{16}$	1.05296	129.6194	1.05615	129.5091	1.05932	131.4128
$\frac{19}{32}$	1.05306	129.6782	1.05625	129.5684	1.05942	131.4725
$\frac{5}{8}$	1.05316	129.7371	1.05635	129.6277	1.05952	131.5322
$\frac{21}{32}$	1.05326	129.7960	1.05645	129.6870	1.05961	131.5920
$\frac{11}{16}$	1.05336	129.8548	1.05655	129.7463	1.05971	131.6517
$\frac{23}{32}$	1.05346	129.9137	1.05665	129.8057	1.05981	131.7115
$\frac{3}{4}$	1.05356	129.9727	1.05675	129.8650	1.05991	131.7713
$\frac{25}{32}$	1.05366	128.0316	1.05685	129.9244	1.06001	131.8311
$\frac{13}{16}$	1.05376	128.0905	1.05694	129.9838	1.06011	131.8909
$\frac{27}{32}$	1.05386	128.1495	1.05704	130.0431	1.06021	131.9507
$\frac{7}{8}$	1.05396	128.2084	1.05714	130.1025	1.06030	132.0105
$\frac{29}{32}$	1.05406	128.2674	1.05724	130.1620	1.06040	132.0704
$\frac{15}{16}$	1.05416	128.3264	1.05734	130.2214	1.06050	132.1302
$\frac{31}{32}$	1.05426	128.3854	1.05744	130.2808	1.06060	132.1901
1	1.05436	128.4444	1.05754	130.3403	1.06070	132.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.06070	132.2500	1.06383	134.1736	1.06685	136.1111
$\frac{1}{32}$	1.06080	132.3099	1.06393	134.2339	1.06704	136.1719
$\frac{1}{16}$	1.06089	132.3698	1.06403	134.2943	1.06714	136.2327
$\frac{3}{32}$	1.06099	132.4297	1.06413	134.3547	1.06724	136.2935
$\frac{1}{8}$	1.06109	132.4897	1.06422	134.4150	1.06733	136.3543
$\frac{5}{32}$	1.06119	132.5496	1.06432	134.4754	1.06743	136.4151
$\frac{3}{16}$	1.06129	132.6096	1.06442	134.5358	1.06753	136.4759
$\frac{7}{32}$	1.06139	132.6696	1.06452	134.5963	1.06762	136.5368
$\frac{1}{4}$	1.06148	132.7296	1.06461	134.6567	1.06772	136.5977
$\frac{9}{32}$	1.06158	132.7896	1.06471	134.7171	1.06782	136.6585
$\frac{5}{16}$	1.06168	132.8496	1.06481	134.7776	1.06792	136.7194
$\frac{11}{32}$	1.06178	132.9097	1.06491	134.8381	1.06801	136.7803
$\frac{3}{8}$	1.06188	132.9697	1.06500	134.8985	1.06811	136.8413
$\frac{13}{32}$	1.06197	133.0298	1.06510	134.9590	1.06821	136.9022
$\frac{7}{16}$	1.06207	133.0899	1.06520	135.0196	1.06830	136.9631
$\frac{15}{32}$	1.06217	133.1500	1.06530	135.0801	1.06840	137.0241
$\frac{1}{2}$	1.06227	133.2101	1.06539	135.1406	1.06850	137.0851
$\frac{17}{32}$	1.06237	133.2702	1.06549	135.2012	1.06859	137.1461
$\frac{9}{16}$	1.06246	133.3303	1.06559	135.2617	1.06869	137.2071
$\frac{19}{32}$	1.06256	133.3905	1.06568	135.3223	1.06878	137.2681
$\frac{5}{8}$	1.06266	133.4506	1.06578	135.3829	1.06888	137.3291
$\frac{21}{32}$	1.06276	133.5108	1.06588	135.4435	1.06898	137.3901
$\frac{11}{16}$	1.06286	133.5710	1.06598	135.5042	1.06907	137.4512
$\frac{23}{32}$	1.06295	133.6312	1.06607	135.5648	1.06917	137.5123
$\frac{3}{4}$	1.06305	133.6914	1.06617	135.6254	1.06927	137.5734
$\frac{25}{32}$	1.06315	133.7516	1.06627	135.6861	1.06936	137.6344
$\frac{13}{16}$	1.06325	133.8119	1.06636	135.7468	1.06946	137.6956
$\frac{27}{32}$	1.06335	133.8721	1.06646	135.8075	1.06956	137.7567
$\frac{7}{8}$	1.06344	133.9324	1.06656	135.8682	1.06965	137.8178
$\frac{29}{32}$	1.06354	133.9927	1.06666	135.9289	1.06975	137.8790
$\frac{15}{16}$	1.06364	134.0530	1.06675	135.9896	1.06985	137.9401
$\frac{31}{32}$	1.06374	134.1133	1.06685	136.0504	1.06994	138.0013
1	1.06383	134.1736	1.06695	136.1111	1.07004	138.0625

# 11'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.07004	138.0625	1.07311	140.0278	1.07615	142.0069
$\frac{1}{64}$	1.07013	138.1237	1.07320	140.0894	1.07625	142.0690
$\frac{1}{32}$	1.07023	138.1849	1.07330	140.1511	1.07634	142.1311
$\frac{1}{16}$	1.07033	138.2462	1.07339	140.2127	1.07644	142.1932
$\frac{3}{64}$	1.07042	138.3074	1.07349	140.2744	1.07653	142.2553
$\frac{1}{8}$	1.07052	138.3687	1.07358	140.3361	1.07663	142.3174
$\frac{5}{64}$	1.07062	138.4299	1.07368	140.3978	1.07672	142.3796
$\frac{3}{32}$	1.07071	138.4912	1.07378	140.4595	1.07682	142.4417
$\frac{1}{4}$	1.07081	138.5525	1.07387	140.5213	1.07691	142.5039
$\frac{7}{64}$	1.07090	138.6138	1.07397	140.5830	1.07701	142.5661
$\frac{9}{64}$	1.07100	138.6752	1.07406	140.6448	1.07710	142.6283
$\frac{11}{64}$	1.07110	138.7365	1.07416	140.7065	1.07720	142.6905
$\frac{3}{16}$	1.07119	138.7979	1.07425	140.7683	1.07729	142.7527
$\frac{13}{64}$	1.07129	138.8592	1.07435	140.8301	1.07739	142.8149
$\frac{7}{32}$	1.07138	138.9206	1.07444	140.8920	1.07748	142.8772
$\frac{15}{64}$	1.07148	138.9820	1.07454	140.9538	1.07758	142.9395
$\frac{1}{2}$	1.07158	139.0434	1.07463	141.0156	1.07767	143.0017
$\frac{17}{64}$	1.07167	139.1048	1.07473	141.0775	1.07777	143.0640
$\frac{9}{32}$	1.07177	139.1663	1.07482	141.1394	1.07786	143.1263
$\frac{19}{64}$	1.07186	139.2277	1.07492	141.2012	1.07796	143.1886
$\frac{5}{8}$	1.07196	139.2892	1.07501	141.2631	1.07805	143.2510
$\frac{21}{64}$	1.07205	139.3506	1.07511	141.3250	1.07814	143.3133
$\frac{11}{32}$	1.07215	139.4121	1.07520	141.3870	1.07824	143.3757
$\frac{23}{64}$	1.07225	139.4736	1.07530	141.4489	1.07833	143.4380
$\frac{3}{4}$	1.07234	139.5352	1.07539	141.5109	1.07843	143.5004
$\frac{25}{64}$	1.07244	139.5967	1.07549	141.5728	1.07852	143.5628
$\frac{13}{32}$	1.07253	139.6582	1.07558	141.6348	1.07862	143.6252
$\frac{27}{64}$	1.07263	139.7198	1.07568	141.6968	1.07871	143.6877
$\frac{7}{8}$	1.07272	139.7814	1.07577	141.7588	1.07880	143.7501
$\frac{29}{64}$	1.07282	139.8429	1.07587	141.8208	1.07890	143.8126
$\frac{15}{32}$	1.07292	139.9045	1.07596	141.8828	1.07899	143.8750
$\frac{31}{64}$	1.07301	139.9662	1.07606	141.9449	1.07909	143.9375
1	1.07311	140.0278	1.07615	142.0069	1.07918	144.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.07918	144.0000	1.08219	146.0069	1.08517	148.0278
$\frac{1}{32}$	1.07928	144.0625	1.08228	146.0699	1.08526	148.0912
$\frac{1}{16}$	1.07937	144.1250	1.08237	146.1328	1.08536	148.1545
$\frac{3}{32}$	1.07946	144.1876	1.08247	146.1958	1.08545	148.2179
$\frac{1}{8}$	1.07956	144.2501	1.08256	146.2588	1.08554	148.2814
$\frac{5}{32}$	1.07965	144.3127	1.08265	146.3218	1.08564	148.3448
$\frac{3}{16}$	1.07975	144.3752	1.08275	146.3848	1.08573	148.4082
$\frac{7}{32}$	1.07984	144.4378	1.08284	146.4478	1.08582	148.4717
$\frac{1}{4}$	1.07993	144.5004	1.08293	146.5109	1.08591	148.5352
$\frac{9}{32}$	1.08003	144.5630	1.08303	146.5739	1.08601	148.5986
$\frac{5}{16}$	1.08012	144.6257	1.08312	146.6370	1.08610	148.6621
$\frac{11}{32}$	1.08022	144.6888	1.08322	146.7000	1.08619	148.7256
$\frac{3}{8}$	1.08031	144.7510	1.08331	146.7631	1.08629	148.7892
$\frac{13}{32}$	1.08040	144.8136	1.08340	146.8262	1.08638	148.8527
$\frac{7}{16}$	1.08050	144.8763	1.08350	146.8893	1.08647	148.9163
$\frac{15}{32}$	1.08059	144.9390	1.08359	146.9525	1.08656	148.9798
$\frac{1}{2}$	1.08069	145.0017	1.08368	147.0156	1.08666	149.0434
$\frac{17}{32}$	1.08078	145.0645	1.08378	147.0788	1.08675	149.1070
$\frac{9}{16}$	1.08087	145.1272	1.08387	147.1420	1.08684	149.1706
$\frac{19}{32}$	1.08097	145.1899	1.08396	147.2051	1.08693	149.2342
$\frac{5}{8}$	1.08106	145.2527	1.08405	147.2683	1.08703	149.2979
$\frac{21}{32}$	1.08116	145.3155	1.08415	147.3315	1.08712	149.3615
$\frac{11}{16}$	1.08125	145.3783	1.08424	147.3948	1.08721	149.4252
$\frac{23}{32}$	1.08134	145.4411	1.08433	147.4580	1.08730	149.4888
$\frac{3}{4}$	1.08144	145.5039	1.08443	147.5213	1.08740	149.5525
$\frac{25}{32}$	1.08153	145.5667	1.08452	147.5845	1.08749	149.6162
$\frac{13}{16}$	1.08162	145.6296	1.08461	147.6478	1.08758	149.6799
$\frac{27}{32}$	1.08172	145.6924	1.08471	147.7111	1.08767	149.7437
$\frac{7}{8}$	1.08181	145.7553	1.08480	147.7744	1.08777	149.8074
$\frac{29}{32}$	1.08191	145.8182	1.08489	147.8377	1.08786	149.8712
$\frac{15}{16}$	1.08200	145.8811	1.08499	147.9011	1.08795	149.9349
$\frac{31}{32}$	1.08209	145.9440	1.08508	147.9644	1.08804	149.9987
1	1.08219	146.0069	1.08517	148.0278	1.08814	150.0625

Fractions of an inch.	3"		4		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.08814	150.0625	1.09108	152.1111	1.09401	154.1736
$\frac{1}{32}$	1.08823	150.1263	1.09117	152.1754	1.09410	154.2383
$\frac{1}{16}$	1.08832	150.1901	1.09126	152.2396	1.09419	154.3030
$\frac{3}{32}$	1.08841	150.2540	1.09136	152.3039	1.09428	154.3677
$\frac{1}{8}$	1.08851	150.3178	1.09145	152.3682	1.09437	154.4324
$\frac{5}{32}$	1.08860	150.3817	1.09154	152.4325	1.09446	154.4971
$\frac{3}{16}$	1.08869	150.4456	1.09163	152.4968	1.09455	154.5619
$\frac{7}{32}$	1.08878	150.5094	1.09172	152.5611	1.09464	154.6266
$\frac{1}{4}$	1.08887	150.5734	1.09181	152.6254	1.09473	154.6914
$\frac{9}{32}$	1.08897	150.6373	1.09190	152.6898	1.09482	154.7562
$\frac{5}{16}$	1.08906	150.7012	1.09200	152.7542	1.09491	154.8210
$\frac{11}{32}$	1.08915	150.7651	1.09209	152.8185	1.09501	154.8858
$\frac{3}{8}$	1.08924	150.8291	1.09218	152.8829	1.09510	154.9506
$\frac{13}{32}$	1.08933	150.8931	1.09227	152.9473	1.09519	155.0155
$\frac{7}{16}$	1.08943	150.9571	1.09236	153.0117	1.09528	155.0803
$\frac{15}{32}$	1.08952	151.0211	1.09245	153.0762	1.09537	155.1452
$\frac{1}{2}$	1.08961	151.0851	1.09255	153.1406	1.09546	155.2101
$\frac{17}{32}$	1.08970	151.1491	1.09264	153.2051	1.09555	155.2750
$\frac{9}{16}$	1.08979	151.2131	1.09273	153.2696	1.09564	155.3399
$\frac{19}{32}$	1.08989	151.2772	1.09282	153.3340	1.09573	155.4048
$\frac{5}{8}$	1.08998	151.3413	1.09291	153.3985	1.09582	155.4697
$\frac{21}{32}$	1.09007	151.4053	1.09300	153.4631	1.09591	155.5347
$\frac{11}{16}$	1.09016	151.4694	1.09309	153.5276	1.09600	155.5996
$\frac{23}{32}$	1.09025	151.5335	1.09318	153.5921	1.09609	155.6646
$\frac{3}{4}$	1.09035	151.5977	1.09328	153.6567	1.09619	155.7296
$\frac{25}{32}$	1.09044	151.6618	1.09337	153.7213	1.09628	155.7946
$\frac{13}{16}$	1.09053	151.7259	1.09346	153.7858	1.09637	155.8596
$\frac{27}{32}$	1.09062	151.7901	1.09355	153.8504	1.09646	155.9246
$\frac{7}{8}$	1.09071	151.8543	1.09364	153.9150	1.09655	155.9897
$\frac{29}{32}$	1.09081	151.9185	1.09373	153.9797	1.09664	156.0547
$\frac{15}{16}$	1.09090	151.9827	1.09382	154.0443	1.09673	156.1198
$\frac{31}{32}$	1.09099	152.0469	1.09391	154.1089	1.09682	156.1849
1	1.09108	152.1111	1.09401	154.1736	1.09691	156.2500

12'

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.09691	156.2500	1.09980	158.3403	1.10286	160.4444
$\frac{1}{32}$	1.09700	156.8151	1.09989	158.4058	1.10275	160.5104
$\frac{1}{16}$	1.09709	156.8802	1.09998	158.4714	1.10284	160.5764
$\frac{3}{32}$	1.09718	156.4454	1.10007	158.5370	1.10293	160.6424
$\frac{1}{8}$	1.09727	156.5105	1.10016	158.6025	1.10302	160.7084
$\frac{5}{32}$	1.09736	156.5757	1.10024	158.6681	1.10311	160.7745
$\frac{3}{16}$	1.09745	156.6409	1.10033	158.7338	1.10320	160.8405
$\frac{7}{32}$	1.09754	156.7061	1.10042	158.7994	1.10329	160.9066
$\frac{1}{4}$	1.09763	156.7713	1.10051	158.8650	1.10338	160.9727
$\frac{9}{32}$	1.09772	156.8365	1.10060	158.9307	1.10347	161.0387
$\frac{5}{16}$	1.09781	156.9017	1.10069	158.9963	1.10355	161.1048
$\frac{11}{32}$	1.09790	156.9670	1.10078	159.0620	1.10364	161.1710
$\frac{3}{8}$	1.09799	157.0322	1.10087	159.1277	1.10373	161.2371
$\frac{13}{32}$	1.09808	157.0975	1.10096	159.1934	1.10382	161.3032
$\frac{7}{16}$	1.09817	157.1628	1.10105	159.2591	1.10391	161.3694
$\frac{15}{32}$	1.09827	157.2281	1.10114	159.3249	1.10400	161.4356
$\frac{1}{2}$	1.09836	157.2934	1.10123	159.3906	1.10409	161.5017
$\frac{17}{32}$	1.09845	157.3587	1.10132	159.4564	1.10418	161.5679
$\frac{9}{16}$	1.09854	157.4241	1.10141	159.5222	1.10427	161.6341
$\frac{19}{32}$	1.09863	157.4894	1.10150	159.5880	1.10436	161.7004
$\frac{5}{8}$	1.09872	157.5548	1.10159	159.6538	1.10444	161.7666
$\frac{21}{32}$	1.09881	157.6202	1.10168	159.7196	1.10453	161.8329
$\frac{11}{16}$	1.09890	157.6856	1.10177	159.7854	1.10462	161.8991
$\frac{23}{32}$	1.09899	157.7510	1.10186	159.8512	1.10471	161.9654
$\frac{3}{4}$	1.09908	157.8164	1.10195	159.9171	1.10480	162.0317
$\frac{25}{32}$	1.09917	157.8818	1.10204	159.9830	1.10489	162.0980
$\frac{13}{16}$	1.09926	157.9473	1.10213	160.0489	1.10498	162.1643
$\frac{27}{32}$	1.09935	158.0128	1.10222	160.1148	1.10507	162.2306
$\frac{7}{8}$	1.09944	158.0782	1.10231	160.1807	1.10516	162.2970
$\frac{29}{32}$	1.09953	158.1437	1.10239	160.2466	1.10524	162.3633
$\frac{15}{16}$	1.09962	158.2092	1.10248	160.3125	1.10533	162.4297
$\frac{31}{32}$	1.09971	158.2747	1.10257	160.3785	1.10542	162.4961
1	1.09980	158.3403	1.10266	160.4444	1.10551	162.5625

# 12'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.10551	162.5625	1.10834	164.6944	1.11115	166.8403
$\frac{1}{32}$	1.10560	162.6289	1.10843	164.7618	1.11124	166.9076
$\frac{1}{16}$	1.10569	162.6953	1.10852	164.8282	1.11133	166.9749
$\frac{3}{32}$	1.10578	162.7618	1.10860	164.8950	1.11141	167.0422
$\frac{1}{8}$	1.10586	162.8282	1.10869	164.9619	1.11150	167.1095
$\frac{5}{32}$	1.10595	162.8947	1.10878	165.0288	1.11159	167.1768
$\frac{3}{16}$	1.10604	162.9612	1.10887	165.0957	1.11168	167.2442
$\frac{7}{32}$	1.10613	163.0277	1.10896	165.1627	1.11176	167.3115
$\frac{1}{4}$	1.10622	163.0942	1.10904	165.2296	1.11185	167.3789
$\frac{9}{32}$	1.10631	163.1607	1.10913	165.2966	1.11194	167.4463
$\frac{5}{16}$	1.10640	163.2272	1.10922	165.3635	1.11203	167.5137
$\frac{11}{32}$	1.10648	163.2938	1.10931	165.4305	1.11211	167.5811
$\frac{3}{8}$	1.10657	163.3604	1.10940	165.4975	1.11220	167.6485
$\frac{13}{32}$	1.10666	163.4269	1.10948	165.5645	1.11229	167.7160
$\frac{7}{16}$	1.10675	163.4935	1.10957	165.6315	1.11237	167.7834
$\frac{15}{32}$	1.10684	163.5601	1.10966	165.6986	1.11246	167.8509
$\frac{1}{2}$	1.10693	163.6267	1.10975	165.7656	1.11255	167.9184
$\frac{17}{32}$	1.10702	163.6934	1.10984	165.8327	1.11264	167.9859
$\frac{9}{16}$	1.10710	163.7600	1.10992	165.8998	1.11272	168.0534
$\frac{19}{32}$	1.10719	163.8267	1.11001	165.9669	1.11281	168.1209
$\frac{5}{8}$	1.10728	163.8933	1.11010	166.0340	1.11290	168.1885
$\frac{21}{32}$	1.10737	163.9600	1.11019	166.1011	1.11299	168.2560
$\frac{11}{16}$	1.10746	164.0267	1.11027	166.1682	1.11307	168.3236
$\frac{23}{32}$	1.10755	164.0934	1.11036	166.2354	1.11316	168.3912
$\frac{3}{4}$	1.10763	164.1602	1.11045	166.3025	1.11325	168.4588
$\frac{25}{32}$	1.10772	164.2269	1.11054	166.3697	1.11333	168.5264
$\frac{13}{16}$	1.10781	164.2936	1.11062	166.4369	1.11342	168.5940
$\frac{27}{32}$	1.10790	164.3604	1.11071	166.5041	1.11351	168.6616
$\frac{7}{8}$	1.10799	164.4272	1.11080	166.5713	1.11360	168.7293
$\frac{29}{32}$	1.10808	164.4940	1.11089	166.6385	1.11368	168.7969
$\frac{15}{16}$	1.10816	164.5608	1.11098	166.7058	1.11377	168.8646
$\frac{31}{32}$	1.10825	164.6276	1.11106	166.7730	1.11386	168.9323
1	1.10834	164.6944	1.11115	166.8403	1.11394	169.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.11394	169.0000	1.11672	171.1736	1.11948	173.3611
$\frac{1}{32}$	1.11403	169.0677	1.11680	171.2418	1.11956	173.4297
$\frac{1}{16}$	1.11412	169.1354	1.11689	171.3099	1.11965	173.4983
$\frac{3}{32}$	1.11420	169.2032	1.11698	171.3781	1.11973	173.5669
$\frac{1}{8}$	1.11429	169.2709	1.11706	171.4463	1.11982	173.6355
$\frac{5}{32}$	1.11438	169.3387	1.11715	171.5145	1.11991	173.7042
$\frac{3}{16}$	1.11447	169.4065	1.11724	171.5827	1.11999	173.7728
$\frac{7}{32}$	1.11455	169.4743	1.11732	171.6509	1.12008	173.8415
$\frac{1}{4}$	1.11464	169.5421	1.11741	171.7192	1.12016	173.9102
$\frac{9}{32}$	1.11473	169.6099	1.11750	171.7874	1.12025	173.9788
$\frac{5}{16}$	1.11481	169.6778	1.11758	171.8557	1.12033	174.0476
$\frac{11}{32}$	1.11490	169.7456	1.11767	171.9240	1.12042	174.1163
$\frac{3}{8}$	1.11499	169.8135	1.11775	171.9923	1.12051	174.1850
$\frac{13}{32}$	1.11507	169.8814	1.11784	172.0606	1.12059	174.2538
$\frac{7}{16}$	1.11516	169.9492	1.11793	172.1289	1.12068	174.3225
$\frac{15}{32}$	1.11525	170.0172	1.11801	172.1973	1.12076	174.3913
$\frac{1}{2}$	1.11533	170.0851	1.11810	172.2656	1.12085	174.4601
$\frac{17}{32}$	1.11542	170.1530	1.11819	172.3340	1.12093	174.5289
$\frac{9}{16}$	1.11551	170.2209	1.11827	172.4024	1.12102	174.5977
$\frac{19}{32}$	1.11559	170.2889	1.11836	172.4708	1.12110	174.6665
$\frac{5}{8}$	1.11568	170.3569	1.11844	172.5392	1.12119	174.7354
$\frac{21}{32}$	1.11577	170.4249	1.11853	172.6076	1.12128	174.8042
$\frac{11}{16}$	1.11585	170.4929	1.11862	172.6760	1.12136	174.8731
$\frac{23}{32}$	1.11594	170.5609	1.11870	172.7445	1.12145	174.9420
$\frac{3}{4}$	1.11603	170.6289	1.11879	172.8129	1.12153	175.0109
$\frac{25}{32}$	1.11611	170.6969	1.11887	172.8814	1.12162	175.0798
$\frac{13}{16}$	1.11620	170.7650	1.11896	172.9499	1.12170	175.1487
$\frac{27}{32}$	1.11629	170.8331	1.11905	173.0184	1.12179	175.2176
$\frac{7}{8}$	1.11637	170.9011	1.11913	173.0869	1.12187	175.2866
$\frac{29}{32}$	1.11646	170.9692	1.11922	173.1554	1.12196	175.3555
$\frac{15}{16}$	1.11655	171.0374	1.11930	173.2240	1.12205	175.4245
$\frac{31}{32}$	1.11663	171.1055	1.11939	173.2925	1.12213	175.4935
1	1.11672	171.1736	1.11948	173.3611	1.12222	175.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.12222	175.5625	1.12494	177.7778	1.12764	180.0069
$\frac{1}{32}$	1.12230	175.6315	1.12502	177.8472	1.12773	180.0768
$\frac{1}{16}$	1.12239	175.7005	1.12511	177.9167	1.12781	180.1467
$\frac{3}{32}$	1.12247	175.7696	1.12519	177.9862	1.12790	180.2166
$\frac{1}{8}$	1.12256	175.8387	1.12528	178.0557	1.12798	180.2866
$\frac{5}{32}$	1.12264	175.9077	1.12536	178.1252	1.12807	180.3565
$\frac{3}{16}$	1.12273	175.9768	1.12545	178.1947	1.12815	180.4265
$\frac{7}{32}$	1.12281	176.0459	1.12553	178.2642	1.12823	180.4964
$\frac{1}{4}$	1.12290	176.1150	1.12562	178.3338	1.12832	180.5664
$\frac{9}{32}$	1.12298	176.1841	1.12570	178.4033	1.12840	180.6364
$\frac{5}{16}$	1.12307	176.2533	1.12579	178.4729	1.12849	180.7064
$\frac{11}{32}$	1.12315	176.3224	1.12587	178.5425	1.12857	180.7764
$\frac{3}{8}$	1.12324	176.3916	1.12596	178.6121	1.12866	180.8465
$\frac{13}{32}$	1.12332	176.4608	1.12604	178.6817	1.12874	180.9165
$\frac{7}{16}$	1.12341	176.5300	1.12612	178.7513	1.12882	180.9866
$\frac{15}{32}$	1.12349	176.5992	1.12621	178.8210	1.12891	181.0566
$\frac{1}{2}$	1.12358	176.6684	1.12629	178.8906	1.12899	181.1267
$\frac{17}{32}$	1.12366	176.7376	1.12638	178.9603	1.12908	181.1968
$\frac{9}{16}$	1.12375	176.8069	1.12646	179.0300	1.12916	181.2670
$\frac{19}{32}$	1.12383	176.8761	1.12655	179.0997	1.12924	181.3371
$\frac{5}{8}$	1.12392	176.9454	1.12663	179.1694	1.12933	181.4072
$\frac{21}{32}$	1.12400	177.0147	1.12672	179.2391	1.12941	181.4774
$\frac{11}{16}$	1.12409	177.0840	1.12680	179.3088	1.12950	181.5476
$\frac{23}{32}$	1.12417	177.1533	1.12689	179.3786	1.12958	181.6177
$\frac{3}{4}$	1.12426	177.2227	1.12697	179.4484	1.12966	181.6879
$\frac{25}{32}$	1.12434	177.2920	1.12705	179.5181	1.12975	181.7581
$\frac{13}{16}$	1.12443	177.3614	1.12714	179.5879	1.12983	181.8284
$\frac{27}{32}$	1.12451	177.4307	1.12722	179.6577	1.12991	181.8986
$\frac{7}{8}$	1.12460	177.5001	1.12731	179.7275	1.13000	181.9689
$\frac{29}{32}$	1.12468	177.5695	1.12739	179.7974	1.13008	182.0391
$\frac{15}{16}$	1.12477	177.6389	1.12748	179.8672	1.13017	182.1094
$\frac{31}{32}$	1.12485	177.7083	1.12756	179.9371	1.13025	182.1797
1	1.12494	177.7778	1.12764	180.0069	1.13033	182.2500

# 13'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.13033	182.2500	1.13301	184.5069	1.13566	186.7778
$\frac{1}{32}$	1.13042	182.3203	1.13309	184.5777	1.13575	186.8490
$\frac{1}{16}$	1.13050	182.3907	1.13317	184.6485	1.13583	186.9202
$\frac{3}{32}$	1.13059	182.4610	1.13326	184.7192	1.13591	186.9914
$\frac{1}{8}$	1.13067	182.5314	1.13334	184.7900	1.13599	187.0626
$\frac{5}{32}$	1.13075	182.6017	1.13342	184.8608	1.13608	187.1339
$\frac{3}{16}$	1.13084	182.6721	1.13351	184.9317	1.13616	187.2051
$\frac{7}{32}$	1.13092	182.7425	1.13359	185.0025	1.13624	187.2764
$\frac{1}{4}$	1.13100	182.8129	1.13367	185.0734	1.13632	187.3477
$\frac{9}{32}$	1.13109	182.8834	1.13376	185.1442	1.13641	187.4190
$\frac{5}{16}$	1.13117	182.9538	1.13384	185.2151	1.13649	187.4903
$\frac{11}{32}$	1.13125	183.0243	1.13392	185.2860	1.13657	187.5616
$\frac{3}{8}$	1.13134	183.0947	1.13400	185.3569	1.13665	187.6329
$\frac{13}{32}$	1.13142	183.1652	1.13409	185.4278	1.13674	187.7043
$\frac{7}{16}$	1.13151	183.2357	1.13417	185.4987	1.13682	187.7756
$\frac{15}{32}$	1.13159	183.3062	1.13425	185.5697	1.13690	187.8470
$\frac{1}{2}$	1.13167	183.3767	1.13434	185.6406	1.13698	187.9184
$\frac{17}{32}$	1.13176	183.4473	1.13442	185.7116	1.13707	187.9898
$\frac{9}{16}$	1.13184	183.5178	1.13450	185.7826	1.13715	188.0612
$\frac{19}{32}$	1.13192	183.5884	1.13459	185.8536	1.13723	188.1327
$\frac{5}{8}$	1.13201	183.6590	1.13467	185.9246	1.13731	188.2041
$\frac{21}{32}$	1.13209	183.7296	1.13475	185.9956	1.13740	188.2756
$\frac{11}{16}$	1.13217	183.8002	1.13483	186.0667	1.13748	188.3470
$\frac{23}{32}$	1.13226	183.8708	1.13492	186.1377	1.13756	188.4185
$\frac{3}{4}$	1.13234	183.9414	1.13500	186.2088	1.13764	188.4900
$\frac{25}{32}$	1.13242	184.0121	1.13508	186.2798	1.13773	188.5615
$\frac{13}{16}$	1.13251	184.0827	1.13517	186.3509	1.13781	188.6331
$\frac{27}{32}$	1.13259	184.1534	1.13525	186.4220	1.13789	188.7046
$\frac{7}{8}$	1.13267	184.2241	1.13533	186.4932	1.13797	188.7762
$\frac{29}{32}$	1.13276	184.2948	1.13541	186.5643	1.13806	188.8477
$\frac{15}{16}$	1.13284	184.3655	1.13550	186.6354	1.13814	188.9193
$\frac{31}{32}$	1.13292	184.4362	1.13558	186.7066	1.13822	188.9909
1	1.13301	184.5069	1.13566	186.7778	1.13830	189.0625

# 13'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.13830	189.0625	1.14093	191.3611	1.14354	193.6736
$\frac{1}{32}$	1.13838	189.1341	1.14101	191.4332	1.14362	193.7461
$\frac{1}{16}$	1.13847	189.2058	1.14109	191.5052	1.14370	193.8186
$\frac{3}{32}$	1.13855	189.2774	1.14117	191.5773	1.14378	193.8911
$\frac{1}{8}$	1.13863	189.3491	1.14125	191.6494	1.14386	193.9637
$\frac{5}{32}$	1.13871	189.4207	1.14134	191.7215	1.14394	194.0362
$\frac{3}{16}$	1.13880	189.4924	1.14142	191.7936	1.14402	194.1088
$\frac{7}{32}$	1.13888	189.5641	1.14150	191.8658	1.14410	194.1813
$\frac{1}{4}$	1.13896	189.6359	1.14158	191.9379	1.14418	194.2539
$\frac{9}{32}$	1.13904	189.7076	1.14166	192.0101	1.14427	194.3265
$\frac{5}{16}$	1.13912	189.7793	1.14174	192.0823	1.14435	194.3991
$\frac{11}{32}$	1.13921	189.8511	1.14183	192.1545	1.14443	194.4717
$\frac{3}{8}$	1.13929	189.9229	1.14191	192.2267	1.14451	194.5444
$\frac{13}{32}$	1.13937	189.9946	1.14199	192.2989	1.14459	194.6170
$\frac{7}{16}$	1.13945	190.0664	1.14207	192.3711	1.14467	194.6897
$\frac{15}{32}$	1.13953	190.1382	1.14215	192.4434	1.14475	194.7624
$\frac{1}{2}$	1.13962	190.2101	1.14223	192.5156	1.14483	194.8351
$\frac{17}{32}$	1.13970	190.2819	1.14231	192.5879	1.14491	194.9078
$\frac{9}{16}$	1.13978	190.3538	1.14240	192.6602	1.14500	194.9805
$\frac{19}{32}$	1.13986	190.4256	1.14248	192.7325	1.14508	195.0532
$\frac{5}{8}$	1.13994	190.4975	1.14256	192.8048	1.14516	195.1260
$\frac{21}{32}$	1.14003	190.5694	1.14264	192.8771	1.14524	195.1987
$\frac{11}{16}$	1.14011	190.6413	1.14272	192.9495	1.14532	195.2715
$\frac{23}{32}$	1.14019	190.7132	1.14280	193.0218	1.14540	195.3443
$\frac{3}{4}$	1.14027	190.7852	1.14288	193.0942	1.14548	195.4171
$\frac{25}{32}$	1.14035	190.8571	1.14297	193.1666	1.14556	195.4899
$\frac{13}{16}$	1.14044	190.9291	1.14305	193.2390	1.14564	195.5627
$\frac{27}{32}$	1.14052	191.0010	1.14313	193.3114	1.14572	195.6356
$\frac{7}{8}$	1.14060	191.0730	1.14321	193.3838	1.14580	195.7084
$\frac{29}{32}$	1.14068	191.1450	1.14329	193.4562	1.14589	195.7813
$\frac{15}{16}$	1.14076	191.2170	1.14337	193.5287	1.14597	195.8542
$\frac{31}{32}$	1.14085	191.2891	1.14345	193.6011	1.14605	195.9271
1	1.14093	191.3611	1.14354	193.6736	1.14613	196.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.14613	196.0000	1.14871	198.3403	1.15127	200.6944
$\frac{1}{32}$	1.14621	196.0729	1.14879	198.4136	1.15135	200.7682
$\frac{1}{16}$	1.14629	196.1459	1.14887	198.4870	1.15143	200.8420
$\frac{3}{32}$	1.14637	196.2188	1.14895	198.5604	1.15151	200.9159
$\frac{1}{8}$	1.14645	196.2918	1.14903	198.6338	1.15159	200.9897
$\frac{5}{32}$	1.14653	196.3648	1.14911	198.7072	1.15167	201.0635
$\frac{3}{16}$	1.14661	196.4377	1.14919	198.7806	1.15175	201.1374
$\frac{7}{32}$	1.14669	196.5107	1.14927	198.8541	1.15183	201.2113
$\frac{1}{4}$	1.14677	196.5838	1.14935	198.9275	1.15191	201.2852
$\frac{9}{32}$	1.14685	196.6568	1.14943	199.0010	1.15199	201.3591
$\frac{5}{16}$	1.14694	196.7298	1.14951	199.0745	1.15207	201.4330
$\frac{11}{32}$	1.14702	196.8029	1.14959	199.1480	1.15214	201.5069
$\frac{3}{8}$	1.14710	196.8760	1.14967	199.2215	1.15222	201.5808
$\frac{13}{32}$	1.14718	196.9491	1.14975	199.2950	1.15230	201.6548
$\frac{7}{16}$	1.14726	197.0222	1.14983	199.3685	1.15238	201.7288
$\frac{15}{32}$	1.14734	197.0953	1.14991	199.4421	1.15246	201.8027
$\frac{1}{2}$	1.14742	197.1684	1.14999	199.5156	1.15254	201.8767
$\frac{17}{32}$	1.14750	197.2415	1.15007	199.5892	1.15262	201.9507
$\frac{9}{16}$	1.14758	197.3147	1.15015	199.6628	1.15270	202.0248
$\frac{19}{32}$	1.14766	197.3879	1.15023	199.7364	1.15278	202.0988
$\frac{5}{8}$	1.14774	197.4610	1.15031	199.8100	1.15286	202.1729
$\frac{21}{32}$	1.14782	197.5342	1.15039	199.8836	1.15294	202.2469
$\frac{11}{16}$	1.14790	197.6074	1.15047	199.9573	1.15302	202.3210
$\frac{23}{32}$	1.14798	197.6807	1.15055	200.0309	1.15310	202.3951
$\frac{3}{4}$	1.14806	197.7539	1.15063	200.1046	1.15318	202.4692
$\frac{25}{32}$	1.14814	197.8272	1.15071	200.1783	1.15326	202.5433
$\frac{13}{16}$	1.14822	197.9004	1.15079	200.2520	1.15334	202.6174
$\frac{27}{32}$	1.14830	197.9737	1.15087	200.3257	1.15342	202.6916
$\frac{7}{8}$	1.14838	198.0470	1.15095	200.3994	1.15350	202.7657
$\frac{29}{32}$	1.14846	198.1203	1.15103	200.4732	1.15358	202.8399
$\frac{15}{16}$	1.14854	198.1936	1.15111	200.5469	1.15366	202.9141
$\frac{31}{32}$	1.14863	198.2669	1.15119	200.6207	1.15374	202.9883
1	1.14871	198.3403	1.15127	200.6944	1.15381	203.0625

Fractions of an inch.	3"		4		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.15381	203.0625	1.15635	205.4444	1.15886	207.8403
$\frac{1}{32}$	1.15389	203.1367	1.15643	205.5191	1.15894	207.9154
$\frac{1}{16}$	1.15397	203.2110	1.15650	205.5938	1.15902	207.9905
$\frac{3}{32}$	1.15405	203.2852	1.15658	205.6685	1.15910	208.0656
$\frac{1}{8}$	1.15413	203.3595	1.15666	205.7432	1.15918	208.1407
$\frac{5}{32}$	1.15421	203.4338	1.15674	205.8179	1.15926	208.2159
$\frac{3}{16}$	1.15429	203.5081	1.15682	205.8926	1.15934	208.2910
$\frac{7}{32}$	1.15437	203.5824	1.15690	205.9673	1.15941	208.3662
$\frac{1}{4}$	1.15445	203.6567	1.15698	206.0421	1.15949	208.4414
$\frac{9}{32}$	1.15453	203.7310	1.15706	206.1169	1.15957	208.5166
$\frac{5}{16}$	1.15461	203.8054	1.15714	206.1917	1.15965	208.5918
$\frac{11}{32}$	1.15469	203.8797	1.15721	206.2664	1.15973	208.6671
$\frac{3}{8}$	1.15477	203.9541	1.15729	206.3413	1.15981	208.7423
$\frac{13}{32}$	1.15485	204.0285	1.15737	206.4161	1.15988	208.8176
$\frac{7}{16}$	1.15492	204.1029	1.15745	206.4909	1.15996	208.8928
$\frac{15}{32}$	1.15500	204.1773	1.15753	206.5658	1.16004	208.9681
$\frac{1}{2}$	1.15508	204.2517	1.15761	206.6406	1.16012	209.0434
$\frac{17}{32}$	1.15516	204.3262	1.15769	206.7155	1.16020	209.1187
$\frac{9}{16}$	1.15524	204.4006	1.15777	206.7904	1.16027	209.1940
$\frac{19}{32}$	1.15532	204.4751	1.15784	206.8653	1.16035	209.2694
$\frac{5}{8}$	1.15540	204.5496	1.15792	206.9402	1.16043	209.3447
$\frac{21}{32}$	1.15548	204.6241	1.15800	207.0151	1.16051	209.4201
$\frac{11}{16}$	1.15556	204.6986	1.15808	207.0901	1.16059	209.4955
$\frac{23}{32}$	1.15564	204.7731	1.15816	207.1650	1.16067	209.5709
$\frac{3}{4}$	1.15572	204.8477	1.15824	207.2400	1.16074	209.6463
$\frac{25}{32}$	1.15579	204.9222	1.15832	207.3150	1.16082	209.7217
$\frac{13}{16}$	1.15587	204.9968	1.15839	207.3900	1.16090	209.7971
$\frac{27}{32}$	1.15595	205.0714	1.15847	207.4650	1.16098	209.8726
$\frac{7}{8}$	1.15603	205.1459	1.15855	207.5400	1.16106	209.9480
$\frac{29}{32}$	1.15611	205.2205	1.15863	207.6151	1.16113	210.0235
$\frac{15}{16}$	1.15619	205.2952	1.15871	207.6901	1.16121	210.0990
$\frac{31}{32}$	1.15627	205.3698	1.15879	207.7652	1.16129	210.1745
1	1.15635	205.4444	1.15886	207.8403	1.16137	210.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.16137	210.2500	1.16398	212.6736	1.16633	215.1111
$\frac{1}{32}$	1.16145	210.3255	1.16398	212.7496	1.16641	215.1875
$\frac{1}{16}$	1.16152	210.4011	1.16401	212.8255	1.16649	215.2639
$\frac{3}{32}$	1.16160	210.4768	1.16409	212.9015	1.16656	215.3403
$\frac{1}{8}$	1.16168	210.5522	1.16417	212.9775	1.16664	215.4168
$\frac{5}{32}$	1.16176	210.6278	1.16424	213.0536	1.16672	215.4932
$\frac{3}{16}$	1.16184	210.7034	1.16432	213.1296	1.16679	215.5697
$\frac{7}{32}$	1.16191	210.7790	1.16440	213.2056	1.16687	215.6462
$\frac{1}{4}$	1.16199	210.8546	1.16448	213.2817	1.16695	215.7227
$\frac{9}{32}$	1.16207	210.9302	1.16455	213.3578	1.16702	215.7992
$\frac{5}{16}$	1.16215	211.0059	1.16463	213.4338	1.16710	215.8757
$\frac{11}{32}$	1.16223	211.0815	1.16471	213.5099	1.16718	215.9522
$\frac{3}{8}$	1.16230	211.1572	1.16479	213.5860	1.16726	216.0288
$\frac{13}{32}$	1.16238	211.2329	1.16486	213.6622	1.16733	216.1053
$\frac{7}{16}$	1.16246	211.3086	1.16494	213.7383	1.16741	216.1819
$\frac{15}{32}$	1.16254	211.3843	1.16502	213.8145	1.16749	216.2585
$\frac{1}{2}$	1.16261	211.4601	1.16510	213.8906	1.16756	216.3351
$\frac{17}{32}$	1.16269	211.5358	1.16517	213.9668	1.16764	216.4117
$\frac{9}{16}$	1.16277	211.6116	1.16525	214.0430	1.16772	216.4883
$\frac{19}{32}$	1.16285	211.6873	1.16533	214.1192	1.16779	216.5649
$\frac{5}{8}$	1.16293	211.7631	1.16541	214.1954	1.16787	216.6416
$\frac{21}{32}$	1.16300	211.8389	1.16548	214.2717	1.16795	216.7183
$\frac{11}{16}$	1.16308	211.9147	1.16556	214.3479	1.16802	216.7949
$\frac{23}{32}$	1.16316	211.9906	1.16564	214.4242	1.16810	216.8716
$\frac{3}{4}$	1.16324	212.0664	1.16571	214.5004	1.16818	216.9484
$\frac{25}{32}$	1.16331	212.1423	1.16579	214.5767	1.16825	217.0251
$\frac{13}{16}$	1.16339	212.2181	1.16587	214.6530	1.16833	217.1018
$\frac{27}{32}$	1.16347	212.2940	1.16595	214.7293	1.16841	217.1786
$\frac{7}{8}$	1.16355	212.3699	1.16602	214.8057	1.16849	217.2553
$\frac{29}{32}$	1.16362	212.4458	1.16610	214.8820	1.16856	217.3321
$\frac{15}{16}$	1.16370	212.5217	1.16618	214.9584	1.16864	217.4089
$\frac{31}{32}$	1.16378	212.5977	1.16625	215.0347	1.16872	217.4857
1	1.16386	212.6736	1.16633	215.1111	1.16879	217.5625

Fractions of an Inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.16879	217.5625	1.17124	220.0278	1.17367	222.5069
$\frac{1}{32}$	1.16887	217.6393	1.17131	220.1050	1.17375	222.5846
$\frac{1}{16}$	1.16895	217.7162	1.17139	220.1823	1.17382	222.6624
$\frac{3}{32}$	1.16902	217.7930	1.17147	220.2596	1.17390	222.7401
$\frac{1}{8}$	1.16910	217.8699	1.17154	220.3369	1.17397	222.8178
$\frac{5}{32}$	1.16918	217.9468	1.17162	220.4142	1.17405	222.8956
$\frac{3}{16}$	1.16925	218.0237	1.17170	220.4918	1.17413	222.9733
$\frac{7}{32}$	1.16933	218.1006	1.17177	220.5689	1.17420	223.0511
$\frac{1}{4}$	1.16940	218.1775	1.17185	220.6463	1.17428	223.1289
$\frac{9}{32}$	1.16948	218.2545	1.17192	220.7236	1.17435	223.2067
$\frac{5}{16}$	1.16956	218.3314	1.17200	220.8010	1.17443	223.2845
$\frac{11}{32}$	1.16963	218.4084	1.17208	220.8784	1.17451	223.3624
$\frac{3}{8}$	1.16971	218.4854	1.17215	220.9558	1.17458	223.4402
$\frac{13}{32}$	1.16979	218.5623	1.17223	221.0333	1.17466	223.5181
$\frac{7}{16}$	1.16986	218.6393	1.17230	221.1107	1.17473	223.5959
$\frac{15}{32}$	1.16994	218.7164	1.17238	221.1882	1.17481	223.6738
$\frac{1}{2}$	1.17002	218.7934	1.17246	221.2656	1.17488	223.7517
$\frac{17}{32}$	1.17009	218.8704	1.17253	221.3431	1.17496	223.8297
$\frac{9}{16}$	1.17017	218.9475	1.17261	221.4206	1.17503	223.9076
$\frac{19}{32}$	1.17025	219.0246	1.17269	221.4981	1.17511	223.9855
$\frac{5}{8}$	1.17032	219.1017	1.17276	221.5756	1.17519	224.0635
$\frac{21}{32}$	1.17040	219.1788	1.17284	221.6532	1.17526	224.1414
$\frac{11}{16}$	1.17048	219.2559	1.17291	221.7307	1.17534	224.2194
$\frac{23}{32}$	1.17055	219.3330	1.17299	221.8083	1.17541	224.2974
$\frac{3}{4}$	1.17063	219.4102	1.17306	221.8859	1.17549	224.3754
$\frac{25}{32}$	1.17070	219.4873	1.17314	221.9634	1.17556	224.4535
$\frac{13}{16}$	1.17078	219.5645	1.17322	222.0410	1.17564	224.5315
$\frac{27}{32}$	1.17086	219.6417	1.17329	222.1187	1.17571	224.6095
$\frac{7}{8}$	1.17093	219.7189	1.17337	222.1963	1.17579	224.6876
$\frac{29}{32}$	1.17101	219.7961	1.17344	222.2739	1.17587	224.7657
$\frac{15}{16}$	1.17109	219.8733	1.17352	222.3516	1.17594	224.8438
$\frac{31}{32}$	1.17116	219.9505	1.17360	222.4293	1.17602	224.9219
1	1.17124	220.0278	1.17367	222.5069	1.17609	225.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.17609	225.0000	1.17850	227.5069	1.18089	230.0278
$\frac{1}{32}$	1.17617	225.0781	1.17857	227.5855	1.18096	230.1068
$\frac{1}{16}$	1.17624	225.1563	1.17865	227.6641	1.18104	230.1858
$\frac{3}{32}$	1.17632	225.2344	1.17872	227.7427	1.18111	230.2648
$\frac{1}{8}$	1.17639	225.3126	1.17880	227.8213	1.18119	230.3439
$\frac{5}{32}$	1.17647	225.3908	1.17887	227.8999	1.18126	230.4229
$\frac{3}{16}$	1.17654	225.4690	1.17895	227.9785	1.18134	230.5020
$\frac{7}{32}$	1.17662	225.5472	1.17902	228.0572	1.18141	230.5811
$\frac{1}{4}$	1.17669	225.6254	1.17910	228.1359	1.18149	230.6602
$\frac{9}{32}$	1.17677	225.7037	1.17917	228.2145	1.18156	230.7393
$\frac{5}{16}$	1.17684	225.7819	1.17925	228.2932	1.18164	230.8184
$\frac{11}{32}$	1.17692	225.8602	1.17932	228.3719	1.18171	230.8975
$\frac{3}{8}$	1.17700	225.9385	1.17940	228.4506	1.18178	230.9767
$\frac{13}{32}$	1.17707	226.0168	1.17947	228.5294	1.18186	231.0558
$\frac{7}{16}$	1.17715	226.0951	1.17955	228.6081	1.18193	231.1350
$\frac{15}{32}$	1.17722	226.1734	1.17962	228.6869	1.18201	231.2142
$\frac{1}{2}$	1.17730	226.2517	1.17970	228.7656	1.18208	231.2934
$\frac{17}{32}$	1.17737	226.3301	1.17977	228.8444	1.18216	231.3726
$\frac{9}{16}$	1.17745	226.4084	1.17984	228.9232	1.18223	231.4519
$\frac{19}{32}$	1.17752	226.4868	1.17992	229.0020	1.18230	231.5311
$\frac{5}{8}$	1.17760	226.5652	1.17999	229.0808	1.18238	231.6104
$\frac{21}{32}$	1.17767	226.6436	1.18007	229.1597	1.18245	231.6896
$\frac{11}{16}$	1.17775	226.7220	1.18014	229.2385	1.18253	231.7689
$\frac{23}{32}$	1.17782	226.8005	1.18022	229.3174	1.18260	231.8482
$\frac{3}{4}$	1.17790	226.8789	1.18029	229.3963	1.18268	231.9275
$\frac{25}{32}$	1.17797	226.9574	1.18037	229.4752	1.18275	232.0068
$\frac{13}{16}$	1.17805	227.0358	1.18044	229.5541	1.18282	232.0862
$\frac{27}{32}$	1.17812	227.1143	1.18052	229.6330	1.18290	232.1655
$\frac{7}{8}$	1.17820	227.1928	1.18059	229.7119	1.18297	232.2449
$\frac{29}{32}$	1.17827	227.2713	1.18067	229.7909	1.18305	232.3243
$\frac{15}{16}$	1.17835	227.3499	1.18074	229.8698	1.18312	232.4037
$\frac{31}{32}$	1.17842	227.4284	1.18082	229.9488	1.18320	232.4831
1	1.17850	227.5069	1.18089	230.0278	1.18327	232.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.18327	232.5625	1.18564	235.1111	1.18799	237.6736
$\frac{1}{32}$	1.18334	232.6419	1.18571	235.1910	1.18806	237.7539
$\frac{1}{16}$	1.18342	232.7214	1.18578	235.2709	1.18814	237.8342
$\frac{3}{32}$	1.18349	232.8008	1.18586	235.3508	1.18821	237.9146
$\frac{1}{8}$	1.18357	232.8803	1.18593	235.4307	1.18828	237.9949
$\frac{5}{32}$	1.18364	232.9598	1.18601	235.5106	1.18836	238.0753
$\frac{3}{16}$	1.18371	233.0393	1.18608	235.5905	1.18843	238.1556
$\frac{7}{32}$	1.18379	233.1188	1.18615	235.6705	1.18850	238.2360
$\frac{1}{4}$	1.18386	233.1984	1.18623	235.7504	1.18858	238.3164
$\frac{9}{32}$	1.18394	233.2779	1.18630	235.8304	1.18865	238.3968
$\frac{5}{16}$	1.18401	233.3574	1.18637	235.9104	1.18872	238.4772
$\frac{11}{32}$	1.18408	233.4370	1.18645	235.9904	1.18880	238.5577
$\frac{3}{8}$	1.18416	233.5166	1.18652	236.0704	1.18887	238.6381
$\frac{13}{32}$	1.18423	233.5962	1.18659	236.1505	1.18894	238.7186
$\frac{7}{16}$	1.18431	233.6758	1.18667	236.2305	1.18902	238.7991
$\frac{15}{32}$	1.18438	233.7554	1.18674	236.3106	1.18909	238.8796
$\frac{1}{2}$	1.18445	233.8351	1.18682	236.3906	1.18916	238.9601
$\frac{17}{32}$	1.18453	233.9147	1.18689	236.4707	1.18924	239.0406
$\frac{9}{16}$	1.18460	233.9944	1.18696	236.5508	1.18931	239.1211
$\frac{19}{32}$	1.18468	234.0741	1.18704	236.6309	1.18938	239.2017
$\frac{5}{8}$	1.18475	234.1538	1.18711	236.7110	1.18946	239.2822
$\frac{21}{32}$	1.18482	234.2335	1.18718	236.7912	1.18953	239.3628
$\frac{11}{16}$	1.18490	234.3132	1.18726	236.8713	1.18960	239.4434
$\frac{23}{32}$	1.18497	234.3929	1.18733	236.9515	1.18967	239.5240
$\frac{3}{4}$	1.18505	234.4727	1.18740	237.0317	1.18975	239.6046
$\frac{25}{32}$	1.18512	234.5524	1.18748	237.1119	1.18982	239.6852
$\frac{13}{16}$	1.18519	234.6322	1.18755	237.1921	1.18989	239.7659
$\frac{27}{32}$	1.18527	234.7120	1.18762	237.2723	1.18997	239.8465
$\frac{7}{8}$	1.18534	234.7918	1.18770	237.3525	1.19004	239.9272
$\frac{29}{32}$	1.18542	234.8716	1.18777	237.4328	1.19011	240.0079
$\frac{15}{16}$	1.18549	234.9514	1.18784	237.5130	1.19019	240.0886
$\frac{31}{32}$	1.18556	235.0313	1.18792	237.5933	1.19026	240.1693
1	1.18564	235.1111	1.18799	237.6736	1.19033	240.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.19033	240.2500	1.19266	242.8403	1.19498	245.4444
$\frac{1}{32}$	1.19040	240.3307	1.19273	242.9214	1.19505	245.5260
$\frac{1}{16}$	1.19048	240.4115	1.19281	243.0028	1.19512	245.6077
$\frac{3}{32}$	1.19055	240.4922	1.19288	243.0838	1.19519	245.6893
$\frac{1}{8}$	1.19062	240.5730	1.19295	243.1650	1.19527	245.7709
$\frac{5}{32}$	1.19070	240.6538	1.19302	243.2463	1.19534	245.8526
$\frac{3}{16}$	1.19077	240.7346	1.19310	243.3275	1.19541	245.9343
$\frac{7}{32}$	1.19084	240.8154	1.19317	243.4088	1.19548	246.0160
$\frac{1}{4}$	1.19092	240.8963	1.19324	243.4900	1.19555	246.0977
$\frac{9}{32}$	1.19099	240.9771	1.19331	243.5713	1.19563	246.1794
$\frac{5}{16}$	1.19106	241.0580	1.19339	243.6526	1.19570	246.2611
$\frac{11}{32}$	1.19113	241.1388	1.19346	243.7339	1.19577	246.3428
$\frac{3}{8}$	1.19121	241.2197	1.19353	243.8152	1.19584	246.4246
$\frac{13}{32}$	1.19128	241.3006	1.19360	243.8965	1.19591	246.5064
$\frac{7}{16}$	1.19135	241.3815	1.19368	243.9779	1.19599	246.5881
$\frac{15}{32}$	1.19142	241.4625	1.19375	244.0593	1.19606	246.6699
$\frac{1}{2}$	1.19150	241.5434	1.19382	244.1406	1.19613	246.7517
$\frac{17}{32}$	1.19157	241.6244	1.19389	244.2220	1.19620	246.8336
$\frac{9}{16}$	1.19164	241.7053	1.19396	244.3034	1.19627	246.9154
$\frac{19}{32}$	1.19172	241.7863	1.19404	244.3848	1.19635	246.9972
$\frac{5}{8}$	1.19179	241.8673	1.19411	244.4663	1.19642	247.0791
$\frac{21}{32}$	1.19186	241.9483	1.19418	244.5477	1.19649	247.1610
$\frac{11}{16}$	1.19193	242.0293	1.19425	244.6292	1.19656	247.2429
$\frac{23}{32}$	1.19201	242.1104	1.19433	244.7106	1.19663	247.3248
$\frac{3}{4}$	1.19208	242.1914	1.19440	244.7921	1.19671	247.4067
$\frac{25}{32}$	1.19215	242.2725	1.19447	244.8736	1.19678	247.4886
$\frac{13}{16}$	1.19222	242.3535	1.19454	244.9551	1.19685	247.5706
$\frac{27}{32}$	1.19230	242.4346	1.19462	245.0366	1.19692	247.6525
$\frac{7}{8}$	1.19237	242.5157	1.19469	245.1182	1.19699	247.7345
$\frac{29}{32}$	1.19244	242.5968	1.19476	245.1997	1.19707	247.8165
$\frac{15}{16}$	1.19252	242.6780	1.19483	245.2813	1.19714	247.8985
$\frac{31}{32}$	1.19259	242.7591	1.19490	245.3629	1.19721	247.9805
1	1.19266	242.8403	1.19498	245.4444	1.19728	248.0625

# 15'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.19728	248.0625	1.19957	250.6944	1.20185	253.3403
$\frac{1}{32}$	1.19735	248.1445	1.19964	250.7769	1.20192	253.4232
$\frac{1}{16}$	1.19742	248.2266	1.19972	250.8594	1.20199	253.5061
$\frac{3}{32}$	1.19750	248.3087	1.19979	250.9419	1.20207	253.5890
$\frac{1}{8}$	1.19757	248.3907	1.19986	251.0244	1.20214	253.6720
$\frac{5}{32}$	1.19764	248.4728	1.19993	251.1069	1.20221	253.7549
$\frac{3}{16}$	1.19771	248.5549	1.20000	251.1895	1.20228	253.8379
$\frac{7}{32}$	1.19778	248.6371	1.20007	251.2720	1.20235	253.9209
$\frac{1}{4}$	1.19785	248.7192	1.20014	251.3546	1.20242	254.0039
$\frac{9}{32}$	1.19793	248.8013	1.20021	251.4372	1.20249	254.0869
$\frac{5}{16}$	1.19800	248.8835	1.20029	251.5198	1.20256	254.1699
$\frac{11}{32}$	1.19807	248.9657	1.20036	251.6024	1.20263	254.2530
$\frac{3}{8}$	1.19814	249.0479	1.20043	251.6850	1.20270	254.3360
$\frac{13}{32}$	1.19821	249.1301	1.20050	251.7676	1.20277	254.4191
$\frac{7}{16}$	1.19828	249.2123	1.20057	251.8503	1.20285	254.5022
$\frac{15}{32}$	1.19836	249.2945	1.20064	251.9329	1.20292	254.5853
$\frac{1}{2}$	1.19843	249.3767	1.20071	252.0156	1.20299	254.6684
$\frac{17}{32}$	1.19850	249.4590	1.20078	252.0983	1.20306	254.7515
$\frac{9}{16}$	1.19857	249.5413	1.20086	252.1810	1.20313	254.8347
$\frac{19}{32}$	1.19864	249.6235	1.20093	252.2637	1.20320	254.9178
$\frac{5}{8}$	1.19871	249.7058	1.20100	252.3465	1.20327	255.0010
$\frac{21}{32}$	1.19879	249.7881	1.20107	252.4292	1.20334	255.0842
$\frac{11}{16}$	1.19886	249.8705	1.20114	252.5120	1.20341	255.1673
$\frac{23}{32}$	1.19893	249.9528	1.20121	252.5947	1.20348	255.2505
$\frac{3}{4}$	1.19900	250.0352	1.20128	252.6775	1.20355	255.3338
$\frac{25}{32}$	1.19907	250.1175	1.20135	252.7603	1.20362	255.4170
$\frac{13}{16}$	1.19914	250.1999	1.20143	252.8431	1.20370	255.5002
$\frac{27}{32}$	1.19922	250.2823	1.20150	252.9260	1.20377	255.5835
$\frac{7}{8}$	1.19929	250.3647	1.20157	253.0088	1.20384	255.6668
$\frac{29}{32}$	1.19936	250.4471	1.20164	253.0916	1.20391	255.7501
$\frac{15}{16}$	1.19943	250.5295	1.20171	253.1745	1.20398	255.8334
$\frac{31}{32}$	1.19950	250.6120	1.20178	253.2574	1.20405	255.9167
1	1.19957	250.6944	1.20185	253.3403	1.20412	256.0000

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.20412	256.0000	1.20638	258.6736	1.20862	261.3611
$\frac{1}{32}$	1.20419	256.0633	1.20645	258.7574	1.20869	261.4453
$\frac{1}{16}$	1.20426	256.1667	1.20652	258.8412	1.20876	261.5295
$\frac{3}{32}$	1.20433	256.2501	1.20659	258.9250	1.20883	261.6138
$\frac{1}{8}$	1.20440	256.3334	1.20666	259.0088	1.20890	261.6980
$\frac{5}{32}$	1.20447	256.4168	1.20673	259.0926	1.20897	261.7823
$\frac{3}{16}$	1.20454	256.5002	1.20680	259.1765	1.20904	261.8666
$\frac{7}{32}$	1.20461	256.5837	1.20687	259.2603	1.20911	261.9509
$\frac{1}{4}$	1.20469	256.6671	1.20694	259.3442	1.20918	262.0352
$\frac{9}{32}$	1.20476	256.7505	1.20701	259.4281	1.20925	262.1195
$\frac{5}{16}$	1.20483	256.8340	1.20708	259.5120	1.20932	262.2038
$\frac{11}{32}$	1.20490	256.9175	1.20715	259.5959	1.20939	262.2881
$\frac{3}{8}$	1.20497	257.0010	1.20722	259.6798	1.20946	262.3725
$\frac{13}{32}$	1.20504	257.0845	1.20729	259.7637	1.20953	262.4569
$\frac{7}{16}$	1.20511	257.1680	1.20736	259.8477	1.20960	262.5413
$\frac{15}{32}$	1.20518	257.2515	1.20743	259.9316	1.20967	262.6257
$\frac{1}{2}$	1.20525	257.3351	1.20750	260.0156	1.20974	262.7101
$\frac{17}{32}$	1.20532	257.4186	1.20757	260.0996	1.20981	262.7945
$\frac{9}{16}$	1.20539	257.5022	1.20764	260.1836	1.20988	262.8789
$\frac{19}{32}$	1.20546	257.5858	1.20771	260.2676	1.20995	262.9634
$\frac{5}{8}$	1.20553	257.6694	1.20778	260.3517	1.21002	263.0479
$\frac{21}{32}$	1.20560	257.7530	1.20785	260.4357	1.21009	263.1323
$\frac{11}{16}$	1.20567	257.8366	1.20792	260.5198	1.21016	263.2168
$\frac{23}{32}$	1.20574	257.9203	1.20799	260.6038	1.21023	263.3013
$\frac{3}{4}$	1.20581	258.0039	1.20806	260.6879	1.21030	263.3859
$\frac{25}{32}$	1.20588	258.0876	1.20813	260.7720	1.21037	263.4704
$\frac{13}{16}$	1.20595	258.1713	1.20820	260.8561	1.21044	263.5549
$\frac{27}{32}$	1.20602	258.2549	1.20827	260.9403	1.21051	263.6395
$\frac{7}{8}$	1.20609	258.3386	1.20834	261.0244	1.21057	263.7241
$\frac{29}{32}$	1.20617	258.4224	1.20841	261.1086	1.21064	263.8087
$\frac{15}{16}$	1.20624	258.5061	1.20848	261.1927	1.21071	263.8933
$\frac{31}{32}$	1.20631	258.5899	1.20855	261.2769	1.21078	263.9779
1	1.20638	258.6736	1.20862	261.3611	1.21085	264.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.21085	264.0625	1.21307	266.7778	1.21528	269.5069
$\frac{1}{32}$	1.21092	264.1471	1.21314	266.8629	1.21535	269.5925
$\frac{1}{16}$	1.21099	264.2318	1.21321	266.9479	1.21542	269.6780
$\frac{1}{8}$	1.21106	264.3165	1.21328	267.0330	1.21549	269.7635
$\frac{1}{4}$	1.21113	264.4012	1.21335	267.1182	1.21556	269.8491
$\frac{3}{8}$	1.21120	264.4858	1.21342	267.2033	1.21563	269.9346
$\frac{1}{2}$	1.21127	264.5706	1.21349	267.2884	1.21570	270.0202
$\frac{5}{8}$	1.21134	264.6553	1.21356	267.3736	1.21577	270.1058
$\frac{3}{4}$	1.21141	264.7400	1.21363	267.4588	1.21584	270.1914
$\frac{7}{8}$	1.21148	264.8248	1.21370	267.5440	1.21590	270.2770
$\frac{15}{16}$	1.21155	264.9095	1.21377	267.6292	1.21597	270.3627
$1\frac{1}{16}$	1.21162	264.9943	1.21384	267.7144	1.21604	270.4483
$\frac{1}{8}$	1.21169	265.0791	1.21390	267.7996	1.21611	270.5340
$1\frac{1}{8}$	1.21176	265.1639	1.21397	267.8848	1.21618	270.6196
$\frac{1}{4}$	1.21183	265.2487	1.21404	267.9701	1.21625	270.7053
$1\frac{1}{4}$	1.21190	265.3336	1.21411	268.0553	1.21632	270.7910
$\frac{1}{2}$	1.21197	265.4184	1.21418	268.1406	1.21639	270.8767
$1\frac{1}{2}$	1.21203	265.5033	1.21425	268.2259	1.21645	270.9625
$\frac{3}{4}$	1.21210	265.5881	1.21432	268.3112	1.21652	271.0482
$1\frac{3}{4}$	1.21217	265.6730	1.21439	268.3965	1.21659	271.1340
$\frac{5}{8}$	1.21224	265.7579	1.21446	268.4819	1.21666	271.2197
$2\frac{1}{8}$	1.21231	265.8428	1.21453	268.5672	1.21673	271.3055
$1\frac{1}{4}$	1.21238	265.9278	1.21460	268.6526	1.21680	271.3913
$2\frac{1}{4}$	1.21245	266.0127	1.21466	268.7380	1.21687	271.4771
$\frac{3}{8}$	1.21252	266.0977	1.21473	268.8234	1.21694	271.5629
$2\frac{3}{8}$	1.21259	266.1826	1.21480	268.9088	1.21700	271.6488
$1\frac{3}{4}$	1.21266	266.2676	1.21487	268.9942	1.21707	271.7346
$2\frac{7}{8}$	1.21273	266.3526	1.21494	269.0796	1.21714	271.8205
$\frac{1}{2}$	1.21280	266.4376	1.21501	269.1650	1.21721	271.9064
$2\frac{9}{8}$	1.21287	266.5226	1.21508	269.2505	1.21728	271.9922
$1\frac{5}{4}$	1.21294	266.6077	1.21515	269.3360	1.21735	272.0782
$2\frac{1}{2}$	1.21301	266.6927	1.21522	269.4214	1.21742	272.1641
1	1.21307	266.7778	1.21528	269.5069	1.21748	272.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.21748	272.2500	1.21967	275.0069	1.22185	277.7778
$\frac{1}{32}$	1.21755	272.3359	1.21974	275.0933	1.22192	277.8646
$\frac{1}{16}$	1.21762	272.4219	1.21981	275.1797	1.22198	277.9514
$\frac{3}{32}$	1.21769	272.5079	1.21988	275.2661	1.22205	278.0383
$\frac{1}{8}$	1.21776	272.5939	1.21994	275.3525	1.22212	278.1251
$\frac{5}{32}$	1.21783	272.6799	1.22001	275.4390	1.22219	278.2120
$\frac{3}{16}$	1.21790	272.7659	1.22008	275.5254	1.22226	278.2989
$\frac{7}{32}$	1.21796	272.8519	1.22015	275.6119	1.22232	278.3857
$\frac{1}{4}$	1.21803	272.9379	1.22022	275.6984	1.22239	278.4727
$\frac{9}{32}$	1.21810	273.0240	1.22029	275.7848	1.22246	278.5596
$\frac{5}{16}$	1.21817	273.1101	1.22035	275.8713	1.22253	278.6465
$\frac{11}{32}$	1.21824	273.1961	1.22042	275.9579	1.22259	278.7335
$\frac{3}{8}$	1.21831	273.2822	1.22049	276.0444	1.22266	278.8204
$\frac{13}{32}$	1.21837	273.3683	1.22056	276.1309	1.22273	278.9074
$\frac{7}{16}$	1.21844	273.4545	1.22063	276.2175	1.22280	278.9944
$\frac{15}{32}$	1.21851	273.5406	1.22069	276.3040	1.22287	279.0814
$\frac{1}{2}$	1.21858	273.6267	1.22076	276.3906	1.22293	279.1684
$\frac{17}{32}$	1.21865	273.7129	1.22083	276.4772	1.22300	279.2554
$\frac{9}{16}$	1.21872	273.7991	1.22090	276.5638	1.22307	279.3425
$\frac{19}{32}$	1.21878	273.8853	1.22097	276.6505	1.22314	279.4295
$\frac{5}{8}$	1.21885	273.9715	1.22103	276.7371	1.22320	279.5166
$\frac{21}{32}$	1.21892	274.0577	1.22110	276.8237	1.22327	279.6037
$\frac{11}{16}$	1.21899	274.1439	1.22117	276.9104	1.22334	279.6908
$\frac{23}{32}$	1.21906	274.2302	1.22124	276.9971	1.22341	279.7779
$\frac{3}{4}$	1.21913	274.3164	1.22131	277.0838	1.22347	279.8650
$\frac{25}{32}$	1.21919	274.4027	1.22137	277.1705	1.22354	279.9522
$\frac{13}{16}$	1.21926	274.4890	1.22144	277.2572	1.22361	280.0393
$\frac{27}{32}$	1.21933	274.5753	1.22151	277.3439	1.22368	280.1265
$\frac{7}{8}$	1.21940	274.6616	1.22158	277.4307	1.22374	280.2137
$\frac{29}{32}$	1.21947	274.7479	1.22165	277.5174	1.22381	280.3008
$\frac{15}{16}$	1.21954	274.8342	1.22171	277.6042	1.22388	280.3880
$\frac{31}{32}$	1.21960	274.9206	1.22178	277.6910	1.22395	280.4753
1	1.21967	275.0069	1.22185	277.7778	1.22401	280.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.22401	280.5625	1.22617	283.9611	1.22831	286.1736
$\frac{1}{32}$	1.22408	280.6497	1.22624	283.4488	1.22838	286.2617
$\frac{1}{16}$	1.22415	280.7370	1.22630	283.5365	1.22845	286.3499
$\frac{3}{32}$	1.22422	280.8243	1.22637	283.6242	1.22852	286.4380
$\frac{1}{8}$	1.22428	280.9116	1.22644	283.7119	1.22858	286.5262
$\frac{5}{32}$	1.22435	280.9989	1.22651	283.7996	1.22865	286.6143
$\frac{3}{16}$	1.22442	281.0862	1.22657	283.8874	1.22872	286.7025
$\frac{7}{32}$	1.22449	281.1735	1.22664	283.9752	1.22878	286.7907
$\frac{1}{4}$	1.22455	281.2609	1.22671	284.0629	1.22885	286.8789
$\frac{9}{32}$	1.22462	281.3482	1.22677	284.1507	1.22892	286.9671
$\frac{5}{16}$	1.22469	281.4356	1.22684	284.2385	1.22898	287.0554
$\frac{11}{32}$	1.22476	281.5230	1.22691	284.3263	1.22905	287.1436
$\frac{3}{8}$	1.22482	281.6104	1.22698	284.4142	1.22912	287.2319
$\frac{13}{32}$	1.22489	281.6978	1.22704	284.5020	1.22918	287.3202
$\frac{7}{16}$	1.22496	281.7852	1.22711	284.5899	1.22925	287.4084
$\frac{15}{32}$	1.22503	281.8726	1.22718	284.6777	1.22932	287.4968
$\frac{1}{2}$	1.22509	281.9601	1.22724	284.7656	1.22938	287.5851
$\frac{17}{32}$	1.22516	282.0475	1.22731	284.8535	1.22945	287.6734
$\frac{9}{16}$	1.22523	282.1350	1.22738	284.9414	1.22952	287.7617
$\frac{19}{32}$	1.22530	282.2225	1.22744	285.0294	1.22958	287.8501
$\frac{5}{8}$	1.22536	282.3100	1.22751	285.1173	1.22965	287.9385
$\frac{21}{32}$	1.22543	282.3975	1.22758	285.2052	1.22972	288.0269
$\frac{11}{16}$	1.22550	282.4851	1.22765	285.2932	1.22978	288.1153
$\frac{23}{32}$	1.22557	282.5726	1.22771	285.3812	1.22985	288.2037
$\frac{3}{4}$	1.22563	282.6602	1.22778	285.4692	1.22992	288.2921
$\frac{25}{32}$	1.22570	282.7477	1.22785	285.5572	1.22998	288.3805
$\frac{13}{16}$	1.22577	282.8353	1.22791	285.6452	1.23005	288.4690
$\frac{27}{32}$	1.22583	282.9229	1.22798	285.7332	1.23012	288.5575
$\frac{7}{8}$	1.22590	283.0105	1.22805	285.8213	1.23018	288.6459
$\frac{29}{32}$	1.22597	283.0982	1.22811	285.9093	1.23025	288.7344
$\frac{15}{16}$	1.22604	283.1858	1.22818	285.9974	1.23032	288.8229
$\frac{31}{32}$	1.22610	283.2734	1.22825	286.0855	1.23038	288.9115
1	1.22617	283.3611	1.22831	286.1736	1.23045	289.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.23045	289.0000	1.23257	291.8403	1.23469	294.6944
$\frac{1}{32}$	1.23052	289.0885	1.23264	291.9293	1.23475	294.7839
$\frac{1}{16}$	1.23058	289.1771	1.23271	292.0183	1.23482	294.8733
$\frac{3}{32}$	1.23065	289.2657	1.23277	292.1073	1.23488	294.9627
$\frac{1}{8}$	1.23071	289.3543	1.23284	292.1963	1.23495	295.0522
$\frac{5}{32}$	1.23078	289.4429	1.23290	292.2853	1.23502	295.1417
$\frac{3}{16}$	1.23085	289.5315	1.23297	292.3744	1.23508	295.2311
$\frac{7}{32}$	1.23091	289.6201	1.23304	292.4634	1.23515	295.3206
$\frac{1}{4}$	1.23098	289.7088	1.23310	292.5525	1.23521	295.4102
$\frac{9}{32}$	1.23105	289.7974	1.23317	292.6416	1.23528	295.4997
$\frac{5}{16}$	1.23111	289.8861	1.23323	292.7307	1.23534	295.5892
$\frac{11}{32}$	1.23118	289.9748	1.23330	292.8198	1.23541	295.6788
$\frac{3}{8}$	1.23125	290.0635	1.23337	292.9090	1.23548	295.7683
$\frac{13}{32}$	1.23131	290.1522	1.23343	292.9981	1.23554	295.8579
$\frac{7}{16}$	1.23138	290.2409	1.23350	293.0873	1.23561	295.9475
$\frac{15}{32}$	1.23145	290.3297	1.23356	293.1764	1.23567	296.0371
$\frac{1}{2}$	1.23151	290.4184	1.23363	293.2656	1.23574	296.1267
$\frac{17}{32}$	1.23158	290.5072	1.23370	293.3548	1.23580	296.2164
$\frac{9}{16}$	1.23164	290.5959	1.23376	293.4440	1.23587	296.3060
$\frac{19}{32}$	1.23171	290.6847	1.23383	293.5333	1.23594	296.3957
$\frac{5}{8}$	1.23178	290.7735	1.23389	293.6225	1.23600	296.4854
$\frac{21}{32}$	1.23184	290.8624	1.23396	293.7118	1.23607	296.5750
$\frac{11}{16}$	1.23191	290.9512	1.23403	293.8010	1.23613	296.6647
$\frac{23}{32}$	1.23198	291.0400	1.23409	293.8903	1.23620	296.7545
$\frac{3}{4}$	1.23204	291.1289	1.23416	293.9796	1.23626	296.8442
$\frac{25}{32}$	1.23211	291.2178	1.23422	294.0689	1.23633	296.9339
$\frac{13}{16}$	1.23218	291.3067	1.23429	294.1582	1.23640	297.0237
$\frac{27}{32}$	1.23224	291.3956	1.23436	294.2476	1.23646	297.1135
$\frac{7}{8}$	1.23231	291.4845	1.23442	294.3369	1.23653	297.2032
$\frac{29}{32}$	1.23237	291.5734	1.23449	294.4263	1.23659	297.2930
$\frac{15}{16}$	1.23244	291.6624	1.23455	294.5157	1.23666	297.3828
$\frac{31}{32}$	1.23251	291.7513	1.23462	294.6050	1.23672	297.4727
1	1.23257	291.8403	1.23469	294.6944	1.23679	297.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.23679	297.5625	1.23888	300.4444	1.24097	303.3403
$\frac{1}{32}$	1.23685	297.6524	1.23895	300.5347	1.24103	303.4310
$\frac{1}{16}$	1.23692	297.7422	1.23901	300.6250	1.24109	303.5217
$\frac{3}{32}$	1.23699	297.8321	1.23908	300.7153	1.24116	303.6125
$\frac{1}{8}$	1.23705	297.9220	1.23914	300.8057	1.24122	303.7032
$\frac{5}{32}$	1.23712	298.0119	1.23921	300.8960	1.24129	303.7940
$\frac{3}{16}$	1.23718	298.1018	1.23927	300.9864	1.24135	303.8848
$\frac{7}{32}$	1.23725	298.1917	1.23934	301.0767	1.24142	303.9756
$\frac{1}{4}$	1.23731	298.2817	1.23940	301.1671	1.24148	304.0664
$\frac{9}{32}$	1.23738	298.3716	1.23947	301.2575	1.24155	304.1572
$\frac{5}{16}$	1.23744	298.4616	1.23953	301.3479	1.24161	304.2481
$\frac{11}{32}$	1.23751	298.5516	1.23960	301.4383	1.24168	304.3389
$\frac{3}{8}$	1.23758	298.6416	1.23966	301.5288	1.24174	304.4298
$\frac{13}{32}$	1.23764	298.7316	1.23973	301.6192	1.24181	304.5207
$\frac{7}{16}$	1.23771	298.8216	1.23979	301.7097	1.24187	304.6116
$\frac{15}{32}$	1.23777	298.9117	1.23986	301.8001	1.24194	304.7025
$\frac{1}{2}$	1.23784	299.0017	1.23992	301.8906	1.24200	304.7934
$\frac{17}{32}$	1.23790	299.0918	1.23999	301.9811	1.24207	304.8843
$\frac{9}{16}$	1.23797	299.1819	1.24005	302.0716	1.24213	304.9753
$\frac{19}{32}$	1.23803	299.2720	1.24012	302.1622	1.24220	305.0663
$\frac{5}{8}$	1.23810	299.3621	1.24019	302.2527	1.24226	305.1572
$\frac{21}{32}$	1.23816	299.4522	1.24025	302.3433	1.24233	305.2482
$\frac{11}{16}$	1.23823	299.5423	1.24032	302.4338	1.24239	305.3392
$\frac{23}{32}$	1.23829	299.6325	1.24038	302.5244	1.24246	305.4302
$\frac{3}{4}$	1.23836	299.7227	1.24045	302.6150	1.24252	305.5213
$\frac{25}{32}$	1.23843	299.8128	1.24051	302.7056	1.24259	305.6123
$\frac{13}{16}$	1.23849	299.9030	1.24058	302.7963	1.24265	305.7034
$\frac{27}{32}$	1.23856	299.9932	1.24064	302.8869	1.24271	305.7944
$\frac{7}{8}$	1.23862	300.0834	1.24071	302.9775	1.24278	305.8855
$\frac{29}{32}$	1.23869	300.1737	1.24077	303.0682	1.24284	305.9766
$\frac{15}{16}$	1.23875	300.2639	1.24084	303.1589	1.24291	306.0677
$\frac{31}{32}$	1.23882	300.3542	1.24090	303.2496	1.24297	306.1589
1	1.23888	300.4444	1.24097	303.3403	1.24304	306.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.24304	306.2500	1.24510	309.1736	1.24715	312.1111
$\frac{1}{32}$	1.24310	306.3412	1.24517	309.2652	1.24722	312.2031
$\frac{1}{16}$	1.24317	306.4323	1.24523	309.3568	1.24728	312.2952
$\frac{3}{32}$	1.24323	306.5235	1.24529	309.4484	1.24735	312.3872
$\frac{1}{8}$	1.24330	306.6147	1.24536	309.5400	1.24741	312.4793
$\frac{5}{32}$	1.24336	306.7059	1.24542	309.6317	1.24747	312.5714
$\frac{3}{16}$	1.24343	306.7971	1.24549	309.7233	1.24754	312.6634
$\frac{7}{32}$	1.24349	306.8884	1.24555	309.8150	1.24760	312.7555
$\frac{1}{4}$	1.24355	306.9796	1.24562	309.9067	1.24767	312.8477
$\frac{9}{32}$	1.24362	307.0709	1.24568	309.9984	1.24773	312.9398
$\frac{5}{16}$	1.24368	307.1621	1.24574	310.0901	1.24779	313.0319
$\frac{11}{32}$	1.24375	307.2534	1.24581	310.1818	1.24786	313.1241
$\frac{3}{8}$	1.24381	307.3447	1.24587	310.2735	1.24792	313.2163
$\frac{13}{32}$	1.24388	307.4360	1.24594	310.3653	1.24799	313.3084
$\frac{7}{16}$	1.24394	307.5274	1.24600	310.4571	1.24805	313.4006
$\frac{15}{32}$	1.24401	307.6187	1.24606	310.5488	1.24811	313.4928
$\frac{1}{2}$	1.24407	307.7101	1.24613	310.6406	1.24818	313.5851
$\frac{17}{32}$	1.24414	307.8014	1.24619	310.7324	1.24824	313.6773
$\frac{9}{16}$	1.24420	307.8928	1.24626	310.8242	1.24831	313.7696
$\frac{19}{32}$	1.24426	307.9842	1.24632	310.9161	1.24837	313.8618
$\frac{5}{8}$	1.24433	308.0756	1.24639	311.0079	1.24843	313.9541
$\frac{21}{32}$	1.24439	308.1671	1.24645	311.0998	1.24850	314.0464
$\frac{11}{16}$	1.24446	308.2585	1.24651	311.1917	1.24856	314.1387
$\frac{23}{32}$	1.24452	308.3499	1.24658	311.2835	1.24862	314.2310
$\frac{3}{4}$	1.24459	308.4414	1.24664	311.3754	1.24869	314.3234
$\frac{25}{32}$	1.24465	308.5329	1.24671	311.4673	1.24875	314.4157
$\frac{13}{16}$	1.24472	308.6244	1.24677	311.5593	1.24882	314.5081
$\frac{27}{32}$	1.24478	308.7159	1.24683	311.6512	1.24888	314.6004
$\frac{7}{8}$	1.24484	308.8074	1.24690	311.7432	1.24894	314.6928
$\frac{29}{32}$	1.24491	308.8989	1.24696	311.8351	1.24901	314.7852
$\frac{15}{16}$	1.24497	308.9905	1.24703	311.9271	1.24907	314.8776
$\frac{31}{32}$	1.24504	309.0820	1.24709	312.0191	1.24913	314.9701
1	1.24510	309.1736	1.24715	312.1111	1.24920	315.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.24920	315.0625	1.25123	318.0278	1.25326	321.0069
$\frac{1}{32}$	1.24926	315.1550	1.25130	318.1207	1.25332	321.1008
$\frac{1}{16}$	1.24933	315.2474	1.25136	318.2136	1.25338	321.1936
$\frac{3}{32}$	1.24939	315.3399	1.25142	318.3065	1.25345	321.2870
$\frac{1}{8}$	1.24945	315.4324	1.25149	318.3994	1.25351	321.3803
$\frac{5}{32}$	1.24952	315.5249	1.25155	318.4924	1.25357	321.4737
$\frac{3}{16}$	1.24958	315.6174	1.25161	318.5853	1.25364	321.5671
$\frac{7}{32}$	1.24964	315.7100	1.25168	318.6783	1.25370	321.6605
$\frac{1}{4}$	1.24971	315.8025	1.25174	318.7713	1.25376	321.7539
$\frac{9}{32}$	1.24977	315.8951	1.25180	318.8643	1.25382	321.8473
$\frac{5}{16}$	1.24984	315.9877	1.25187	318.9573	1.25389	321.9408
$\frac{11}{32}$	1.24990	316.0802	1.25193	319.0503	1.25395	322.0342
$\frac{3}{8}$	1.24996	316.1729	1.25199	319.1433	1.25401	322.1277
$\frac{13}{32}$	1.25003	316.2655	1.25206	319.2364	1.25408	322.2212
$\frac{7}{16}$	1.25009	316.3581	1.25212	319.3295	1.25414	322.3147
$\frac{15}{32}$	1.25015	316.4507	1.25218	319.4225	1.25420	322.4082
$\frac{1}{2}$	1.25022	316.5434	1.25225	319.5156	1.25427	322.5017
$\frac{17}{32}$	1.25028	316.6361	1.25231	319.6087	1.25433	322.5953
$\frac{9}{16}$	1.25034	316.7288	1.25237	319.7019	1.25439	322.6888
$\frac{19}{32}$	1.25041	316.8215	1.25244	319.7950	1.25445	322.7824
$\frac{5}{8}$	1.25047	316.9142	1.25250	319.8881	1.25452	322.8760
$\frac{21}{32}$	1.25053	317.0069	1.25256	319.9813	1.25458	322.9696
$\frac{11}{16}$	1.25060	317.0996	1.25263	320.0745	1.25464	323.0632
$\frac{23}{32}$	1.25066	317.1924	1.25269	320.1676	1.25471	323.1568
$\frac{3}{4}$	1.25072	317.2852	1.25275	320.2609	1.25477	323.2504
$\frac{25}{32}$	1.25079	317.3779	1.25282	320.3541	1.25483	323.3441
$\frac{13}{16}$	1.25085	317.4707	1.25288	320.4473	1.25490	323.4377
$\frac{27}{32}$	1.25092	317.5635	1.25294	320.5405	1.25496	323.5314
$\frac{7}{8}$	1.25098	317.6564	1.25300	320.6338	1.25502	323.6251
$\frac{29}{32}$	1.25104	317.7492	1.25307	320.7271	1.25508	323.7188
$\frac{15}{16}$	1.25111	317.8420	1.25313	320.8203	1.25515	323.8125
$\frac{31}{32}$	1.25117	317.9349	1.25319	320.9136	1.25521	323.9063
1	1.25123	318.0278	1.25326	321.0069	1.25527	324.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.25527	324.0000	1.25728	327.0069	1.25928	330.0278
$\frac{1}{32}$	1.25534	324.0038	1.25734	327.1011	1.25934	330.1224
$\frac{1}{16}$	1.25540	324.1875	1.25740	327.1953	1.25940	330.2170
$\frac{3}{32}$	1.25546	324.2813	1.25747	327.2896	1.25946	330.3117
$\frac{1}{8}$	1.25552	324.3751	1.25753	327.3838	1.25952	330.4064
$\frac{5}{32}$	1.25559	324.4689	1.25759	327.4780	1.25959	330.5010
$\frac{3}{16}$	1.25565	324.5627	1.25765	327.5723	1.25965	330.5957
$\frac{7}{32}$	1.25571	324.6566	1.25772	327.6666	1.25971	330.6904
$\frac{1}{4}$	1.25577	324.7504	1.25778	327.7609	1.25977	330.7852
$\frac{9}{32}$	1.25584	324.8443	1.25784	327.8551	1.25984	330.8799
$\frac{5}{16}$	1.25590	324.9382	1.25790	327.9495	1.25990	330.9746
$\frac{11}{32}$	1.25596	325.0321	1.25797	328.0438	1.25996	331.0694
$\frac{3}{8}$	1.25603	325.1260	1.25803	328.1381	1.26002	331.1642
$\frac{13}{32}$	1.25609	325.2199	1.25809	328.2325	1.26008	331.2590
$\frac{7}{16}$	1.25615	325.3138	1.25815	328.3268	1.26015	331.3538
$\frac{15}{32}$	1.25621	325.4078	1.25822	328.4212	1.26021	331.4486
$\frac{1}{2}$	1.25628	325.5017	1.25828	328.5156	1.26027	331.5434
$\frac{17}{32}$	1.25634	325.5957	1.25834	328.6100	1.26033	331.6382
$\frac{9}{16}$	1.25640	325.6897	1.25840	328.7045	1.26039	331.7331
$\frac{19}{32}$	1.25646	325.7837	1.25847	328.7989	1.26046	331.8280
$\frac{5}{8}$	1.25653	325.8777	1.25853	328.8933	1.26052	331.9229
$\frac{21}{32}$	1.25659	325.9717	1.25859	328.9878	1.26058	332.0177
$\frac{11}{16}$	1.25665	326.0658	1.25865	329.0823	1.26064	332.1127
$\frac{23}{32}$	1.25672	326.1598	1.25871	329.1768	1.26070	332.2076
$\frac{3}{4}$	1.25678	326.2539	1.25878	329.2713	1.26077	332.3025
$\frac{25}{32}$	1.25684	326.3480	1.25884	329.3658	1.26083	332.3975
$\frac{13}{16}$	1.25690	326.4421	1.25890	329.4603	1.26089	332.4924
$\frac{27}{32}$	1.25697	326.5362	1.25896	329.5549	1.26095	332.5874
$\frac{7}{8}$	1.25703	326.6303	1.25903	329.6494	1.26101	332.6824
$\frac{29}{32}$	1.25709	326.7245	1.25909	329.7440	1.26108	332.7774
$\frac{15}{16}$	1.25715	326.8186	1.25915	329.8386	1.26114	332.8724
$\frac{31}{32}$	1.25722	326.9128	1.25921	329.9332	1.26120	332.9675
1	1.25728	327.0069	1.25928	330.0278	1.26126	333.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.26126	333.0635	1.26324	336.1111	1.26521	339.1736
$\frac{1}{32}$	1.26132	333.1576	1.26330	336.2066	1.26527	339.2695
$\frac{1}{16}$	1.26139	333.2536	1.26336	336.3021	1.26533	339.3655
$\frac{3}{32}$	1.26145	333.3477	1.26343	336.3976	1.26540	339.4614
$\frac{1}{8}$	1.26151	333.4428	1.26349	336.4932	1.26546	339.5574
$\frac{5}{32}$	1.26157	333.5379	1.26355	336.5887	1.26552	339.6534
$\frac{3}{16}$	1.26163	333.6331	1.26361	336.6843	1.26558	339.7494
$\frac{7}{32}$	1.26170	333.7282	1.26367	336.7798	1.26564	339.8454
$\frac{1}{4}$	1.26176	333.8234	1.26373	336.8754	1.26570	339.9414
$\frac{9}{32}$	1.26182	333.9185	1.26380	336.9710	1.26576	340.0374
$\frac{5}{16}$	1.26188	334.0137	1.26386	337.0667	1.26582	340.1335
$\frac{11}{32}$	1.26194	334.1089	1.26392	337.1623	1.26589	340.2296
$\frac{3}{8}$	1.26201	334.2041	1.26398	337.2579	1.26595	340.3256
$\frac{13}{32}$	1.26207	334.2993	1.26404	337.3536	1.26601	340.4217
$\frac{7}{16}$	1.26213	334.3946	1.26410	337.4492	1.26607	340.5178
$\frac{15}{32}$	1.26219	334.4898	1.26417	337.5449	1.26613	340.6139
$\frac{1}{2}$	1.26225	334.5851	1.26423	337.6406	1.26619	340.7101
$\frac{17}{32}$	1.26232	334.6803	1.26429	337.7363	1.26625	340.8062
$\frac{9}{16}$	1.26238	334.7756	1.26435	337.8321	1.26632	340.9024
$\frac{19}{32}$	1.26244	334.8709	1.26441	337.9278	1.26638	340.9985
$\frac{5}{8}$	1.26250	334.9663	1.26447	338.0235	1.26644	341.0947
$\frac{21}{32}$	1.26256	335.0616	1.26453	338.1193	1.26650	341.1909
$\frac{11}{16}$	1.26262	335.1569	1.26460	338.2151	1.26656	341.2871
$\frac{23}{32}$	1.26269	335.2523	1.26466	338.3109	1.26662	341.3834
$\frac{3}{4}$	1.26275	335.3477	1.26472	338.4067	1.26668	341.4796
$\frac{25}{32}$	1.26281	335.4430	1.26478	338.5025	1.26674	341.5759
$\frac{13}{16}$	1.26287	335.5384	1.26484	338.5983	1.26680	341.6721
$\frac{27}{32}$	1.26293	335.6339	1.26490	338.6942	1.26687	341.7684
$\frac{7}{8}$	1.26299	335.7293	1.26497	338.7900	1.26693	341.8647
$\frac{29}{32}$	1.26306	335.8247	1.26503	338.8859	1.26699	341.9610
$\frac{15}{16}$	1.26312	335.9202	1.26509	338.9818	1.26705	342.0573
$\frac{31}{32}$	1.26318	336.0156	1.26515	339.0777	1.26711	342.1537
1	1.26324	336.1111	1.26521	339.1736	1.26717	342.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.26717	342.2500	1.26912	345.3403	1.27107	348.4444
$\frac{1}{32}$	1.26728	342.3464	1.26918	345.4371	1.27113	348.5417
$\frac{1}{16}$	1.26739	342.4427	1.26925	345.5339	1.27119	348.6389
$\frac{3}{32}$	1.26736	342.5391	1.26931	345.6307	1.27125	348.7362
$\frac{1}{8}$	1.26742	342.6355	1.26937	345.7275	1.27131	348.8334
$\frac{5}{32}$	1.26748	342.7319	1.26943	345.8244	1.27137	348.9307
$\frac{3}{16}$	1.26754	342.8284	1.26949	345.9213	1.27143	349.0280
$\frac{7}{32}$	1.26760	342.9248	1.26955	346.0181	1.27149	349.1253
$\frac{1}{4}$	1.26766	343.0213	1.26961	346.1150	1.27155	349.2227
$\frac{9}{32}$	1.26772	343.1177	1.26967	346.2119	1.27161	349.3200
$\frac{5}{16}$	1.26778	343.2142	1.26973	346.3088	1.27167	349.4173
$\frac{11}{32}$	1.26784	343.3107	1.26979	346.4058	1.27173	349.5147
$\frac{3}{8}$	1.26790	343.4072	1.26985	346.5027	1.27179	349.6121
$\frac{13}{32}$	1.26797	343.5038	1.26991	346.5997	1.27185	349.7095
$\frac{7}{16}$	1.26803	343.6003	1.26997	346.6966	1.27191	349.8069
$\frac{15}{32}$	1.26809	343.6968	1.27004	346.7936	1.27197	349.9043
$\frac{1}{2}$	1.26815	343.7934	1.27010	346.8906	1.27204	350.0017
$\frac{17}{32}$	1.26821	343.8900	1.27016	346.9876	1.27210	350.0992
$\frac{9}{16}$	1.26827	343.9866	1.27022	347.0847	1.27216	350.1966
$\frac{19}{32}$	1.26833	344.0832	1.27028	347.1817	1.27222	350.2941
$\frac{5}{8}$	1.26839	344.1798	1.27034	347.2788	1.27228	350.3916
$\frac{21}{32}$	1.26845	344.2764	1.27040	347.3758	1.27234	350.4891
$\frac{11}{16}$	1.26851	344.3731	1.27046	347.4729	1.27240	350.5866
$\frac{23}{32}$	1.26858	344.4697	1.27052	347.5700	1.27246	350.6841
$\frac{3}{4}$	1.26864	344.5664	1.27058	347.6671	1.27252	350.7817
$\frac{25}{32}$	1.26870	344.6631	1.27064	347.7642	1.27258	350.8792
$\frac{13}{16}$	1.26876	344.7598	1.27070	347.8614	1.27264	350.9768
$\frac{27}{32}$	1.26882	344.8565	1.27076	347.9585	1.27270	351.0744
$\frac{7}{8}$	1.26888	344.9532	1.27082	348.0557	1.27276	351.1720
$\frac{29}{32}$	1.26894	345.0500	1.27088	348.1528	1.27282	351.2696
$\frac{15}{16}$	1.26900	345.1467	1.27095	348.2500	1.27288	351.3672
$\frac{31}{32}$	1.26906	345.2435	1.27101	348.3472	1.27294	351.4649
1	1.26912	345.3403	1.27107	348.4444	1.27300	351.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.27300	351.5625	1.27493	354.6944	1.27684	357.8403
$\frac{1}{32}$	1.27306	351.6602	1.27499	354.7925	1.27690	357.9388
$\frac{1}{16}$	1.27312	351.7578	1.27505	354.8907	1.27696	358.0374
$\frac{3}{32}$	1.27318	351.8555	1.27511	354.9888	1.27702	358.1359
$\frac{1}{8}$	1.27324	351.9532	1.27517	355.0869	1.27708	358.2345
$\frac{5}{32}$	1.27330	352.0510	1.27523	355.1851	1.27714	358.3331
$\frac{3}{16}$	1.27336	352.1487	1.27529	355.2832	1.27720	358.4317
$\frac{7}{32}$	1.27342	352.2464	1.27535	355.3814	1.27726	358.5303
$\frac{1}{4}$	1.27348	352.3442	1.27541	355.4796	1.27732	358.6289
$\frac{9}{32}$	1.27354	352.4420	1.27547	355.5778	1.27738	358.7275
$\frac{5}{16}$	1.27360	352.5397	1.27553	355.6760	1.27744	358.8262
$\frac{11}{32}$	1.27366	352.6375	1.27559	355.7743	1.27750	358.9249
$\frac{3}{8}$	1.27372	352.7354	1.27565	355.8725	1.27756	359.0235
$\frac{13}{32}$	1.27378	352.8332	1.27571	355.9708	1.27762	359.1222
$\frac{7}{16}$	1.27384	352.9310	1.27577	356.0690	1.27768	359.2209
$\frac{15}{32}$	1.27391	353.0289	1.27583	356.1673	1.27774	359.3197
$\frac{1}{2}$	1.27397	353.1267	1.27589	356.2656	1.27780	359.4184
$\frac{17}{32}$	1.27403	353.2246	1.27595	356.3639	1.27786	359.5172
$\frac{9}{16}$	1.27409	353.3225	1.27601	356.4623	1.27792	359.6159
$\frac{19}{32}$	1.27415	353.4204	1.27607	356.5606	1.27798	359.7147
$\frac{5}{8}$	1.27421	353.5183	1.27613	356.6590	1.27804	359.8135
$\frac{21}{32}$	1.27427	353.6163	1.27619	356.7573	1.27810	359.9123
$\frac{11}{16}$	1.27433	353.7142	1.27625	356.8557	1.27816	360.0111
$\frac{23}{32}$	1.27439	353.8122	1.27631	356.9541	1.27822	360.1099
$\frac{3}{4}$	1.27445	353.9102	1.27637	357.0525	1.27828	360.2088
$\frac{25}{32}$	1.27451	354.0081	1.27643	357.1509	1.27834	360.3076
$\frac{13}{16}$	1.27457	354.1061	1.27649	357.2494	1.27840	360.4065
$\frac{27}{32}$	1.27463	354.2042	1.27655	357.3478	1.27846	360.5054
$\frac{7}{8}$	1.27469	354.3022	1.27661	357.4463	1.27852	360.6043
$\frac{29}{32}$	1.27475	354.4002	1.27667	357.5448	1.27857	360.7032
$\frac{15}{16}$	1.27481	354.4983	1.27673	357.6433	1.27863	360.8021
$\frac{31}{32}$	1.27487	354.5964	1.27678	357.7418	1.27869	360.9010
1	1.27493	354.6944	1.27684	357.8403	1.27875	361.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.27875	361.0000	1.28065	364.1736	1.28255	367.3611
$\frac{1}{32}$	1.27881	361.0990	1.28071	364.2730	1.28261	367.4609
$\frac{1}{16}$	1.27887	361.1979	1.28077	364.3724	1.28266	367.5608
$\frac{3}{32}$	1.27893	361.2969	1.28083	364.4718	1.28272	367.6607
$\frac{1}{8}$	1.27899	361.3959	1.28089	364.5713	1.28278	367.7605
$\frac{5}{32}$	1.27905	361.4950	1.28095	364.6707	1.28284	367.8604
$\frac{3}{16}$	1.27911	361.5940	1.28101	364.7702	1.28290	367.9603
$\frac{7}{32}$	1.27917	361.6930	1.28107	364.8697	1.28296	368.0602
$\frac{1}{4}$	1.27923	361.7921	1.28113	364.9692	1.28302	368.1602
$\frac{9}{32}$	1.27929	361.8912	1.28119	365.0687	1.28308	368.2601
$\frac{5}{16}$	1.27935	361.9903	1.28125	365.1682	1.28314	368.3601
$\frac{11}{32}$	1.27941	362.0894	1.28131	365.2677	1.28320	368.4600
$\frac{3}{8}$	1.27947	362.1885	1.28136	365.3673	1.28325	368.5600
$\frac{13}{32}$	1.27953	362.2876	1.28142	365.4669	1.28331	368.6600
$\frac{7}{16}$	1.27959	362.3867	1.28148	365.5664	1.28337	368.7600
$\frac{15}{32}$	1.27965	362.4859	1.28154	365.6660	1.28343	368.8600
$\frac{1}{2}$	1.27970	362.5851	1.28160	365.7656	1.28349	368.9601
$\frac{17}{32}$	1.27976	362.6843	1.28166	365.8652	1.28355	369.0601
$\frac{9}{16}$	1.27982	362.7834	1.28172	365.9649	1.28361	369.1602
$\frac{19}{32}$	1.27988	362.8827	1.28178	366.0645	1.28367	369.2603
$\frac{5}{8}$	1.27994	362.9819	1.28184	366.1642	1.28373	369.3604
$\frac{21}{32}$	1.28000	363.0811	1.28190	366.2638	1.28378	369.4605
$\frac{11}{16}$	1.28006	363.1804	1.28196	366.3635	1.28384	369.5606
$\frac{23}{32}$	1.28012	363.2796	1.28202	366.4632	1.28390	369.6607
$\frac{3}{4}$	1.28018	363.3789	1.28207	366.5629	1.28396	369.7609
$\frac{25}{32}$	1.28024	363.4782	1.28213	366.6627	1.28402	369.8610
$\frac{13}{16}$	1.28030	363.5775	1.28219	366.7624	1.28408	369.9612
$\frac{27}{32}$	1.28036	363.6768	1.28225	366.8621	1.28414	370.0614
$\frac{7}{8}$	1.28042	363.7761	1.28231	366.9619	1.28420	370.1616
$\frac{29}{32}$	1.28048	363.8755	1.28237	367.0617	1.28425	370.2618
$\frac{15}{16}$	1.28054	363.9749	1.28243	367.1615	1.28431	370.3620
$\frac{31}{32}$	1.28059	364.0742	1.28249	367.2613	1.28437	370.4622
1	1.28065	364.1736	1.28255	367.3611	1.28443	370.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.28443	370.5625	1.28631	373.7778	1.28817	377.0069
$\frac{1}{32}$	1.28449	370.6628	1.28637	373.8785	1.28823	377.1081
$\frac{1}{16}$	1.28455	370.7630	1.28642	373.9792	1.28829	377.2092
$\frac{3}{32}$	1.28461	370.8633	1.28648	374.0799	1.28835	377.3104
$\frac{1}{8}$	1.28467	370.9637	1.28654	374.1807	1.28841	377.4116
$\frac{5}{32}$	1.28472	371.0640	1.28660	374.2814	1.28847	377.5128
$\frac{3}{16}$	1.28478	371.1643	1.28666	374.3822	1.28852	377.6140
$\frac{7}{32}$	1.28484	371.2647	1.28672	374.4830	1.28858	377.7152
$\frac{1}{4}$	1.28490	371.3650	1.28677	374.5838	1.28864	377.8164
$\frac{9}{32}$	1.28496	371.4654	1.28683	374.6846	1.28870	377.9177
$\frac{5}{16}$	1.28502	371.5658	1.28689	374.7854	1.28876	378.0189
$\frac{11}{32}$	1.28508	371.6662	1.28695	374.8862	1.28881	378.1202
$\frac{3}{8}$	1.28514	371.7666	1.28701	374.9871	1.28887	378.2215
$\frac{13}{32}$	1.28519	371.8670	1.28707	375.0880	1.28893	378.3228
$\frac{7}{16}$	1.28525	371.9675	1.28712	375.1888	1.28899	378.4241
$\frac{15}{32}$	1.28531	372.0679	1.28718	375.2897	1.28905	378.5254
$\frac{1}{2}$	1.28537	372.1684	1.28724	375.3906	1.28911	378.6267
$\frac{17}{32}$	1.28543	372.2689	1.28730	375.4915	1.28916	378.7281
$\frac{9}{16}$	1.28549	372.3694	1.28736	375.5925	1.28922	378.8295
$\frac{19}{32}$	1.28555	372.4699	1.28742	375.6934	1.28928	378.9308
$\frac{5}{8}$	1.28560	372.5704	1.28748	375.7944	1.28934	379.0322
$\frac{21}{32}$	1.28566	372.6710	1.28753	375.8954	1.28940	379.1336
$\frac{11}{16}$	1.28572	372.7715	1.28759	375.9963	1.28945	379.2351
$\frac{23}{32}$	1.28578	372.8721	1.28765	376.0973	1.28951	379.3365
$\frac{3}{4}$	1.28584	372.9727	1.28771	376.1984	1.28957	379.4379
$\frac{25}{32}$	1.28590	373.0732	1.28777	376.2994	1.28963	379.5394
$\frac{13}{16}$	1.28596	373.1739	1.28783	376.4004	1.28969	379.6409
$\frac{27}{32}$	1.28601	373.2745	1.28788	376.5015	1.28974	379.7424
$\frac{7}{8}$	1.28607	373.3751	1.28794	376.6025	1.28980	379.8439
$\frac{29}{32}$	1.28613	373.4758	1.28800	376.7036	1.28986	379.9454
$\frac{15}{16}$	1.28619	373.5764	1.28806	376.8047	1.28992	380.0469
$\frac{31}{32}$	1.28625	373.6771	1.28812	376.9058	1.28998	380.1484
1	1.28631	373.7778	1.28817	377.0069	1.29003	380.2500

# 19'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.29003	380.2500	1.29189	383.5069	1.29373	386.7778
$\frac{1}{32}$	1.29009	380.3516	1.29194	383.6089	1.29379	386.8802
$\frac{1}{16}$	1.29015	380.4532	1.29200	383.7110	1.29385	386.9827
$\frac{3}{32}$	1.29021	380.5547	1.29206	383.8130	1.29390	387.0851
$\frac{1}{8}$	1.29027	380.6564	1.29212	383.9150	1.29396	387.1876
$\frac{5}{32}$	1.29032	380.7580	1.29218	384.0171	1.29402	387.2901
$\frac{3}{16}$	1.29038	380.8596	1.29223	384.1192	1.29408	387.3926
$\frac{7}{32}$	1.29044	380.9613	1.29229	384.2213	1.29413	387.4951
$\frac{1}{4}$	1.29050	381.0629	1.29235	384.3234	1.29419	387.5977
$\frac{9}{32}$	1.29056	381.1646	1.29241	384.4255	1.29425	387.7002
$\frac{5}{16}$	1.29061	381.2663	1.29246	384.5276	1.29431	387.8028
$\frac{11}{32}$	1.29067	381.3680	1.29252	384.6297	1.29436	387.9053
$\frac{3}{8}$	1.29073	381.4697	1.29258	384.7319	1.29442	388.0079
$\frac{13}{32}$	1.29079	381.5715	1.29264	384.8340	1.29448	388.1105
$\frac{7}{16}$	1.29085	381.6732	1.29269	384.9362	1.29454	388.2131
$\frac{15}{32}$	1.29090	381.7750	1.29275	385.0384	1.29459	388.3158
$\frac{1}{2}$	1.29096	381.8767	1.29281	385.1406	1.29465	388.4184
$\frac{17}{32}$	1.29102	381.9785	1.29287	385.2428	1.29471	388.5211
$\frac{9}{16}$	1.29108	382.0803	1.29292	385.3451	1.29476	388.6237
$\frac{19}{32}$	1.29114	382.1821	1.29298	385.4473	1.29482	388.7264
$\frac{5}{8}$	1.29119	382.2840	1.29304	385.5496	1.29488	388.8291
$\frac{21}{32}$	1.29125	382.3858	1.29310	385.6519	1.29494	388.9318
$\frac{11}{16}$	1.29131	382.4877	1.29316	385.7542	1.29499	389.0345
$\frac{23}{32}$	1.29137	382.5895	1.29321	385.8565	1.29505	389.1373
$\frac{3}{4}$	1.29142	382.6914	1.29327	385.9588	1.29511	389.2400
$\frac{25}{32}$	1.29148	382.7933	1.29333	386.0611	1.29517	389.3428
$\frac{13}{16}$	1.29154	382.8952	1.29339	386.1634	1.29522	389.4456
$\frac{27}{32}$	1.29160	382.9971	1.29344	386.2658	1.29528	389.5483
$\frac{7}{8}$	1.29166	383.0991	1.29350	386.3682	1.29534	389.6512
$\frac{29}{32}$	1.29171	383.2010	1.29356	386.4705	1.29540	389.7540
$\frac{15}{16}$	1.29177	383.3030	1.29362	386.5729	1.29545	389.8568
$\frac{31}{32}$	1.29183	383.4050	1.29367	386.6754	1.29551	389.9596
1	1.29189	383.5069	1.29373	386.7778	1.29557	390.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.29557	390.0625	1.29740	393.3611	1.29922	396.6736
$\frac{1}{32}$	1.29562	390.1654	1.29745	393.4644	1.29927	396.7774
$\frac{1}{16}$	1.29568	390.2683	1.29751	393.5677	1.29933	396.8811
$\frac{3}{32}$	1.29574	390.3712	1.29757	393.6711	1.29939	396.9849
$\frac{1}{8}$	1.29580	390.4741	1.29762	393.7744	1.29944	397.0887
$\frac{5}{32}$	1.29585	390.5770	1.29768	393.8778	1.29950	397.1924
$\frac{3}{16}$	1.29591	390.6799	1.29774	393.9811	1.29956	397.2963
$\frac{7}{32}$	1.29597	390.7829	1.29779	394.0845	1.29961	397.4001
$\frac{1}{4}$	1.29602	390.8859	1.29785	394.1879	1.29967	397.5039
$\frac{9}{32}$	1.29608	390.9888	1.29791	394.2913	1.29973	397.6078
$\frac{5}{16}$	1.29614	391.0918	1.29797	394.3948	1.29978	397.7116
$\frac{11}{32}$	1.29620	391.1948	1.29802	394.4982	1.29984	397.8155
$\frac{3}{8}$	1.29625	391.2979	1.29808	394.6017	1.29990	397.9194
$\frac{13}{32}$	1.29631	391.4009	1.29814	394.7051	1.29995	398.0233
$\frac{7}{16}$	1.29637	391.5039	1.29819	394.8086	1.30001	398.1272
$\frac{15}{32}$	1.29643	391.6070	1.29825	394.9121	1.30007	398.2311
$\frac{1}{2}$	1.29648	391.7101	1.29831	395.0156	1.30012	398.3351
$\frac{17}{32}$	1.29654	391.8132	1.29836	395.1191	1.30018	398.4390
$\frac{9}{16}$	1.29660	391.9163	1.29842	395.2227	1.30024	398.5430
$\frac{19}{32}$	1.29665	392.0194	1.29848	395.3262	1.30029	398.6470
$\frac{5}{8}$	1.29671	392.1225	1.29853	395.4298	1.30035	398.7510
$\frac{21}{32}$	1.29677	392.2256	1.29859	395.5334	1.30041	398.8550
$\frac{11}{16}$	1.29683	392.3288	1.29865	395.6370	1.30046	398.9590
$\frac{23}{32}$	1.29688	392.4320	1.29871	395.7406	1.30052	399.0630
$\frac{3}{4}$	1.29694	392.5352	1.29876	395.8442	1.30058	399.1671
$\frac{25}{32}$	1.29700	392.6384	1.29882	395.9478	1.30063	399.2712
$\frac{13}{16}$	1.29705	392.7416	1.29888	396.0515	1.30069	399.3752
$\frac{27}{32}$	1.29711	392.8448	1.29893	396.1551	1.30075	399.4793
$\frac{7}{8}$	1.29717	392.9480	1.29899	396.2588	1.30080	399.5834
$\frac{29}{32}$	1.29722	393.0513	1.29905	396.3625	1.30086	399.6876
$\frac{15}{16}$	1.29728	393.1545	1.29910	396.4662	1.30092	399.7917
$\frac{31}{32}$	1.29734	393.2578	1.29916	396.5699	1.30097	399.8958
1	1.29740	393.3611	1.29922	396.6736	1.30103	400.0000

# 20'

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.30103	400.0000	1.30284	403.3403	1.30463	406.6944
$\frac{1}{64}$	1.30109	400.1042	1.30289	403.4449	1.30469	406.7985
$\frac{1}{32}$	1.30114	400.2084	1.30295	403.5495	1.30475	406.9045
$\frac{3}{64}$	1.30120	400.3126	1.30300	403.6541	1.30480	407.0096
$\frac{1}{16}$	1.30126	400.4168	1.30306	403.7588	1.30486	407.1147
$\frac{5}{64}$	1.30131	400.5210	1.30312	403.8635	1.30491	407.2198
$\frac{3}{32}$	1.30137	400.6252	1.30317	403.9681	1.30497	407.3249
$\frac{1}{8}$	1.30143	400.7295	1.30323	404.0728	1.30503	407.4300
$\frac{1}{4}$	1.30148	400.8338	1.30329	404.1775	1.30508	407.5352
$\frac{3}{16}$	1.30154	400.9380	1.30334	404.2822	1.30514	407.6403
$\frac{1}{2}$	1.30160	401.0423	1.30340	404.3870	1.30519	407.7455
$\frac{1}{2}$	1.30165	401.1467	1.30345	404.4917	1.30525	407.8506
$\frac{1}{2}$	1.30171	401.2510	1.30351	404.5965	1.30531	407.9558
$\frac{1}{2}$	1.30176	401.3553	1.30357	404.7012	1.30536	408.0610
$\frac{1}{2}$	1.30182	401.4597	1.30362	404.8060	1.30542	408.1663
$\frac{1}{2}$	1.30188	401.5640	1.30368	404.9108	1.30547	408.2715
$\frac{1}{2}$	1.30193	401.6684	1.30374	405.0156	1.30553	408.3767
$\frac{1}{2}$	1.30199	401.7728	1.30379	405.1204	1.30559	408.4820
$\frac{1}{2}$	1.30205	401.8772	1.30385	405.2253	1.30564	408.5873
$\frac{1}{2}$	1.30210	401.9816	1.30390	405.3301	1.30570	408.6926
$\frac{1}{2}$	1.30216	402.0860	1.30396	405.4350	1.30575	408.7979
$\frac{1}{2}$	1.30222	402.1905	1.30402	405.5399	1.30581	408.9032
$\frac{1}{2}$	1.30227	402.2949	1.30407	405.6448	1.30587	409.0085
$\frac{1}{2}$	1.30233	402.3994	1.30413	405.7497	1.30592	409.1138
$\frac{1}{2}$	1.30239	402.5039	1.30419	405.8546	1.30598	409.2192
$\frac{1}{2}$	1.30244	402.6084	1.30424	405.9595	1.30603	409.3246
$\frac{1}{2}$	1.30250	402.7129	1.30430	406.0645	1.30609	409.4299
$\frac{1}{2}$	1.30255	402.8174	1.30435	406.1694	1.30615	409.5353
$\frac{1}{2}$	1.30261	402.9220	1.30441	406.2744	1.30620	409.6407
$\frac{1}{2}$	1.30267	403.0265	1.30447	406.3794	1.30626	409.7462
$\frac{1}{2}$	1.30272	403.1311	1.30452	406.4844	1.30631	409.8516
$\frac{1}{2}$	1.30278	403.2357	1.30458	406.5894	1.30637	409.9570
1	1.30284	403.3403	1.30463	406.6944	1.30643	410.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.30643	410.0625	1.30821	413.4444	1.30998	416.8403
$\frac{1}{32}$	1.30648	410.1680	1.30826	413.5504	1.31004	416.9466
$\frac{1}{16}$	1.30654	410.2735	1.30832	413.6563	1.31010	417.0530
$\frac{3}{32}$	1.30659	410.3790	1.30838	413.7622	1.31015	417.1593
$\frac{1}{8}$	1.30665	410.4845	1.30843	413.8682	1.31021	417.2657
$\frac{5}{32}$	1.30670	410.5900	1.30849	413.9741	1.31026	417.3721
$\frac{3}{16}$	1.30676	410.6956	1.30854	414.0801	1.31032	417.4785
$\frac{7}{32}$	1.30682	410.8011	1.30860	414.1861	1.31037	417.5850
$\frac{1}{4}$	1.30687	410.9067	1.30865	414.2921	1.31043	417.6914
$\frac{9}{32}$	1.30693	411.0123	1.30871	414.3981	1.31048	417.7979
$\frac{5}{16}$	1.30698	411.1179	1.30876	414.5042	1.31054	417.9043
$\frac{11}{32}$	1.30704	411.2235	1.30882	414.6102	1.31059	418.0108
$\frac{3}{8}$	1.30709	411.3291	1.30888	414.7163	1.31065	418.1173
$\frac{13}{32}$	1.30715	411.4347	1.30893	414.8223	1.31070	418.2238
$\frac{7}{16}$	1.30721	411.5404	1.30899	414.9284	1.31076	418.3303
$\frac{15}{32}$	1.30726	411.6461	1.30904	415.0345	1.31081	418.4369
$\frac{1}{2}$	1.30732	411.7517	1.30910	415.1406	1.31087	418.5434
$\frac{17}{32}$	1.30737	411.8574	1.30915	415.2468	1.31093	418.6500
$\frac{9}{16}$	1.30743	411.9631	1.30921	415.3529	1.31098	418.7565
$\frac{19}{32}$	1.30748	412.0689	1.30926	415.4590	1.31104	418.8631
$\frac{5}{8}$	1.30754	412.1746	1.30932	415.5652	1.31109	418.9697
$\frac{21}{32}$	1.30760	412.2803	1.30938	415.6714	1.31115	419.0763
$\frac{11}{16}$	1.30765	412.3861	1.30943	415.7776	1.31120	419.1830
$\frac{23}{32}$	1.30771	412.4919	1.30949	415.8838	1.31126	419.2896
$\frac{3}{4}$	1.30776	412.5977	1.30954	415.9900	1.31131	419.3963
$\frac{25}{32}$	1.30782	412.7035	1.30960	416.0963	1.31137	419.5029
$\frac{13}{16}$	1.30787	412.8093	1.30965	416.2025	1.31142	419.6096
$\frac{27}{32}$	1.30793	412.9151	1.30971	416.3088	1.31148	419.7163
$\frac{7}{8}$	1.30799	413.0209	1.30976	416.4150	1.31153	419.8230
$\frac{29}{32}$	1.30804	413.1268	1.30982	416.5213	1.31159	419.9297
$\frac{15}{16}$	1.30810	413.2327	1.30987	416.6276	1.31164	420.0365
$\frac{31}{32}$	1.30815	413.3385	1.30993	416.7339	1.31170	420.1432
1	1.30821	413.4444	1.30998	416.8403	1.31175	420.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.31175	420.2500	1.31352	423.6736	1.31527	427.1111
$\frac{1}{32}$	1.31181	420.3568	1.31357	423.7808	1.31533	427.2188
$\frac{1}{16}$	1.31186	420.4636	1.31363	423.8880	1.31538	427.3264
$\frac{3}{32}$	1.31192	420.5704	1.31368	423.9953	1.31543	427.4341
$\frac{1}{8}$	1.31197	420.6772	1.31374	424.1025	1.31549	427.5418
$\frac{5}{32}$	1.31203	420.7840	1.31379	424.2098	1.31554	427.6495
$\frac{3}{16}$	1.31208	420.8909	1.31385	424.3171	1.31560	427.7572
$\frac{7}{32}$	1.31214	420.9977	1.31390	424.4244	1.31565	427.8649
$\frac{1}{4}$	1.31219	421.1046	1.31396	424.5317	1.31571	427.9727
$\frac{9}{32}$	1.31225	421.2115	1.31401	424.6390	1.31576	428.0804
$\frac{5}{16}$	1.31231	421.3184	1.31406	424.7463	1.31582	428.1882
$\frac{11}{32}$	1.31236	421.4253	1.31412	424.8537	1.31587	428.2960
$\frac{3}{8}$	1.31242	421.5322	1.31417	424.9610	1.31593	428.4038
$\frac{13}{32}$	1.31247	421.6392	1.31423	425.0684	1.31598	428.5116
$\frac{7}{16}$	1.31253	421.7461	1.31428	425.1758	1.31604	428.6194
$\frac{15}{32}$	1.31258	421.8531	1.31434	425.2832	1.31609	428.7272
$\frac{1}{2}$	1.31264	421.9601	1.31439	425.3906	1.31615	428.8351
$\frac{17}{32}$	1.31269	422.0671	1.31445	425.4981	1.31620	428.9429
$\frac{9}{16}$	1.31275	422.1741	1.31450	425.6055	1.31625	429.0508
$\frac{19}{32}$	1.31280	422.2811	1.31456	425.7130	1.31631	429.1587
$\frac{5}{8}$	1.31286	422.3881	1.31461	425.8204	1.31636	429.2666
$\frac{21}{32}$	1.31291	422.4952	1.31467	425.9279	1.31642	429.3745
$\frac{11}{16}$	1.31297	422.6022	1.31472	426.0354	1.31647	429.4824
$\frac{23}{32}$	1.31302	422.7093	1.31478	426.1429	1.31653	429.5904
$\frac{3}{4}$	1.31308	422.8164	1.31483	426.2504	1.31658	429.6984
$\frac{25}{32}$	1.31313	422.9235	1.31489	426.3580	1.31664	429.8063
$\frac{13}{16}$	1.31319	423.0306	1.31494	426.4655	1.31669	429.9143
$\frac{27}{32}$	1.31324	423.1378	1.31500	426.5731	1.31675	430.0223
$\frac{7}{8}$	1.31330	423.2449	1.31505	426.6807	1.31680	430.1303
$\frac{29}{32}$	1.31335	423.3521	1.31511	426.7883	1.31685	430.2383
$\frac{15}{16}$	1.31341	423.4592	1.31516	426.8959	1.31691	430.3464
$\frac{31}{32}$	1.31346	423.5664	1.31522	427.0035	1.31696	430.4544
1	1.31352	423.6736	1.31527	427.1111	1.31702	430.5625

# 20'

Fractions of an inch	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.31702	430.5625	1.31876	434.0278	1.32049	437.5069
$\frac{1}{32}$	1.31707	430.6706	1.31881	434.1363	1.32055	437.6159
$\frac{1}{16}$	1.31713	430.7787	1.31887	434.2448	1.32060	437.7249
$\frac{3}{32}$	1.31718	430.8868	1.31892	434.3534	1.32065	437.8338
$\frac{1}{8}$	1.31724	430.9949	1.31898	434.4619	1.32071	437.9428
$\frac{5}{32}$	1.31729	431.1030	1.31903	434.5705	1.32076	438.0518
$\frac{3}{16}$	1.31735	431.2112	1.31908	434.6791	1.32082	438.1608
$\frac{7}{32}$	1.31740	431.3193	1.31914	434.7877	1.32087	438.2699
$\frac{1}{4}$	1.31745	431.4275	1.31919	434.8963	1.32092	438.3789
$\frac{9}{32}$	1.31751	431.5357	1.31925	435.0049	1.32098	438.4880
$\frac{5}{16}$	1.31756	431.6439	1.31930	435.1135	1.32103	438.5970
$\frac{11}{32}$	1.31762	431.7521	1.31936	435.2222	1.32109	438.7061
$\frac{3}{8}$	1.31767	431.8604	1.31941	435.3308	1.32114	438.8152
$\frac{13}{32}$	1.31773	431.9686	1.31946	435.4395	1.32119	438.9243
$\frac{7}{16}$	1.31778	432.0768	1.31952	435.5482	1.32125	439.0334
$\frac{15}{32}$	1.31783	432.1851	1.31957	435.6569	1.32130	439.1426
$\frac{1}{2}$	1.31789	432.2934	1.31963	435.7656	1.32136	439.2517
$\frac{17}{32}$	1.31794	432.4017	1.31968	435.8744	1.32141	439.3609
$\frac{9}{16}$	1.31800	432.5100	1.31973	435.9831	1.32146	439.4701
$\frac{19}{32}$	1.31805	432.6183	1.31979	436.0919	1.32152	439.5793
$\frac{5}{8}$	1.31811	432.7267	1.31984	436.2006	1.32157	439.6885
$\frac{21}{32}$	1.31816	432.8350	1.31990	436.3094	1.32163	439.7977
$\frac{11}{16}$	1.31822	432.9434	1.31996	436.4182	1.32168	439.9069
$\frac{23}{32}$	1.31827	433.0518	1.32001	436.5270	1.32173	440.0162
$\frac{3}{4}$	1.31832	433.1602	1.32006	436.6359	1.32179	440.1254
$\frac{25}{32}$	1.31838	433.2686	1.32011	436.7447	1.32184	440.2347
$\frac{13}{16}$	1.31843	433.3770	1.32017	436.8535	1.32190	440.3440
$\frac{27}{32}$	1.31849	433.4854	1.32022	436.9624	1.32195	440.4533
$\frac{7}{8}$	1.31854	433.5939	1.32028	437.0713	1.32200	440.5626
$\frac{29}{32}$	1.31860	433.7023	1.32033	437.1802	1.32206	440.6719
$\frac{15}{16}$	1.31865	433.8108	1.32038	437.2891	1.32211	440.7813
$\frac{31}{32}$	1.31870	433.9193	1.32044	437.3980	1.32217	440.8906
1	1.31876	434.0278	1.32049	437.5069	1.32222	441.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.32222	441.0000	1.32394	444.5069	1.32565	448.0278
$\frac{1}{32}$	1.32227	441.1094	1.32399	444.6168	1.32571	448.1380
$\frac{1}{16}$	1.32233	441.2188	1.32405	444.7266	1.32576	448.2483
$\frac{3}{32}$	1.32238	441.3282	1.32410	444.8364	1.32581	448.3586
$\frac{1}{8}$	1.32243	441.4376	1.32415	444.9463	1.32587	448.4689
$\frac{5}{32}$	1.32249	441.5470	1.32421	445.0562	1.32592	448.5792
$\frac{3}{16}$	1.32254	441.6565	1.32426	445.1660	1.32597	448.6895
$\frac{7}{32}$	1.32260	441.7660	1.32431	445.2759	1.32603	448.7998
$\frac{1}{4}$	1.32265	441.8754	1.32437	445.3859	1.32608	448.9102
$\frac{9}{32}$	1.32270	441.9849	1.32442	445.4958	1.32613	449.0205
$\frac{5}{16}$	1.32276	442.0944	1.32448	445.6057	1.32619	449.1309
$\frac{11}{32}$	1.32281	442.2039	1.32453	445.7157	1.32624	449.2413
$\frac{3}{8}$	1.32287	442.3135	1.32458	445.8256	1.32629	449.3517
$\frac{13}{32}$	1.32292	442.4230	1.32464	445.9356	1.32635	449.4621
$\frac{7}{16}$	1.32297	442.5326	1.32469	446.0456	1.32640	449.5725
$\frac{15}{32}$	1.32303	442.6422	1.32474	446.1556	1.32645	449.6830
$\frac{1}{2}$	1.32308	442.7517	1.32480	446.2656	1.32651	449.7934
$\frac{17}{32}$	1.32313	442.8613	1.32485	446.3757	1.32656	449.9039
$\frac{9}{16}$	1.32319	442.9709	1.32490	446.4857	1.32661	450.0144
$\frac{19}{32}$	1.32324	443.0806	1.32496	446.5958	1.32667	450.1248
$\frac{5}{8}$	1.32330	443.1902	1.32501	446.7058	1.32672	450.2354
$\frac{21}{32}$	1.32335	443.2999	1.32506	446.8159	1.32677	450.3459
$\frac{11}{16}$	1.32340	443.4095	1.32512	446.9260	1.32683	450.4564
$\frac{23}{32}$	1.32346	443.5192	1.32517	447.0361	1.32688	450.5670
$\frac{3}{4}$	1.32351	443.6289	1.32522	447.1463	1.32693	450.6775
$\frac{25}{32}$	1.32356	443.7386	1.32528	447.2564	1.32699	450.7881
$\frac{13}{16}$	1.32362	443.8483	1.32533	447.3666	1.32704	450.8987
$\frac{27}{32}$	1.32367	443.9581	1.32539	447.4767	1.32709	451.0093
$\frac{7}{8}$	1.32372	444.0678	1.32544	447.5869	1.32715	451.1199
$\frac{29}{32}$	1.32378	444.1776	1.32549	447.6971	1.32720	451.2305
$\frac{15}{16}$	1.32383	444.2874	1.32555	447.8073	1.32725	451.3412
$\frac{31}{32}$	1.32389	444.3971	1.32560	447.9175	1.32731	451.4518
1	1.32394	444.5069	1.32565	448.0278	1.32736	451.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.32736	451.5625	1.32906	455.1111	1.33075	458.6736
$\frac{1}{32}$	1.32741	451.6732	1.32911	455.2222	1.33080	458.7852
$\frac{1}{16}$	1.32747	451.7839	1.32916	455.3334	1.33086	458.8967
$\frac{3}{32}$	1.32752	451.8946	1.32922	455.4445	1.33091	459.0083
$\frac{1}{8}$	1.32757	452.0053	1.32927	455.5557	1.33096	459.1199
$\frac{5}{32}$	1.32762	452.1161	1.32932	455.6668	1.33102	459.2315
$\frac{3}{16}$	1.32768	452.2268	1.32938	455.7780	1.33107	459.3431
$\frac{7}{32}$	1.32773	452.3376	1.32943	455.8892	1.33112	459.4548
$\frac{1}{4}$	1.32778	452.4484	1.32948	456.0004	1.33117	459.5664
$\frac{9}{32}$	1.32784	452.5591	1.32954	456.1117	1.33123	459.6781
$\frac{5}{16}$	1.32789	452.6699	1.32959	456.2229	1.33128	459.7897
$\frac{11}{32}$	1.32794	452.7808	1.32964	456.3342	1.33133	459.9014
$\frac{3}{8}$	1.32800	452.8916	1.32969	456.4454	1.33139	460.0131
$\frac{13}{32}$	1.32805	453.0024	1.32975	456.5567	1.33144	460.1248
$\frac{7}{16}$	1.32810	453.1133	1.32980	456.6680	1.33149	460.2366
$\frac{15}{32}$	1.32816	453.2242	1.32985	456.7793	1.33154	460.3483
$\frac{1}{2}$	1.32821	453.3351	1.32991	456.8906	1.33160	460.4601
$\frac{17}{32}$	1.32826	453.4460	1.32996	457.0020	1.33165	460.5718
$\frac{9}{16}$	1.32832	453.5569	1.33001	457.1133	1.33170	460.6836
$\frac{19}{32}$	1.32837	453.6678	1.33006	457.2247	1.33175	460.7954
$\frac{5}{8}$	1.32842	453.7788	1.33012	457.3360	1.33181	460.9072
$\frac{21}{32}$	1.32848	453.8897	1.33017	457.4474	1.33186	461.0190
$\frac{11}{16}$	1.32853	454.0007	1.33022	457.5588	1.33191	461.1309
$\frac{23}{32}$	1.32858	454.1117	1.33028	457.6703	1.33196	461.2427
$\frac{3}{4}$	1.32863	454.2227	1.33033	457.7817	1.33202	461.3546
$\frac{25}{32}$	1.32869	454.3337	1.33038	457.8931	1.33207	461.4665
$\frac{13}{16}$	1.32874	454.4447	1.33043	458.0046	1.33212	461.5784
$\frac{27}{32}$	1.32879	454.5557	1.33049	458.1161	1.33218	461.6903
$\frac{7}{8}$	1.32885	454.6668	1.33054	458.2275	1.33223	461.8022
$\frac{29}{32}$	1.32890	454.7778	1.33059	458.3390	1.33228	461.9141
$\frac{15}{16}$	1.32895	454.8889	1.33065	458.4505	1.33233	462.0261
$\frac{31}{32}$	1.32901	455.0000	1.33070	458.5621	1.33239	462.1380
1	1.32906	455.1111	1.33075	458.6736	1.33244	462.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.33244	462.2500	1.33412	465.8403	1.33579	469.4444
$\frac{1}{64}$	1.33249	462.3620	1.33417	465.9527	1.33584	469.5573
$\frac{1}{32}$	1.33254	462.4740	1.33422	466.0651	1.33590	469.6702
$\frac{3}{64}$	1.33260	462.5860	1.33428	466.1776	1.33595	469.7830
$\frac{1}{16}$	1.33265	462.6980	1.33433	466.2900	1.33600	469.8959
$\frac{5}{64}$	1.33270	462.8101	1.33438	466.4025	1.33605	470.0088
$\frac{3}{32}$	1.33275	462.9221	1.33443	466.5150	1.33611	470.1218
$\frac{7}{64}$	1.33281	463.0342	1.33449	466.6275	1.33616	470.2347
$\frac{1}{8}$	1.33286	463.1463	1.33454	466.7400	1.33621	470.3477
$\frac{9}{64}$	1.33291	463.2584	1.33459	466.8525	1.33626	470.4606
$\frac{5}{32}$	1.33296	463.3705	1.33464	466.9651	1.33631	470.5736
$\frac{11}{64}$	1.33302	463.4826	1.33469	467.0776	1.33637	470.6866
$\frac{3}{16}$	1.33307	463.5947	1.33475	467.1902	1.33642	470.7996
$\frac{13}{64}$	1.33312	463.7069	1.33480	467.3028	1.33647	470.9126
$\frac{7}{32}$	1.33317	463.8190	1.33485	467.4154	1.33652	471.0256
$\frac{15}{64}$	1.33323	463.9312	1.33490	467.5280	1.33657	471.1387
$\frac{1}{4}$	1.33328	464.0434	1.33496	467.6406	1.33663	471.2517
$\frac{17}{64}$	1.33333	464.1556	1.33501	467.7533	1.33668	471.3648
$\frac{9}{32}$	1.33338	464.2678	1.33506	467.8659	1.33673	471.4779
$\frac{19}{64}$	1.33344	464.3801	1.33511	467.9786	1.33678	471.5910
$\frac{5}{16}$	1.33349	464.4923	1.33517	468.0913	1.33683	471.7041
$\frac{21}{64}$	1.33354	464.6046	1.33522	468.2039	1.33689	471.8172
$\frac{11}{32}$	1.33359	464.7168	1.33527	468.3167	1.33694	471.9304
$\frac{23}{64}$	1.33365	464.8291	1.33532	468.4294	1.33699	472.0435
$\frac{3}{8}$	1.33370	464.9414	1.33537	468.5421	1.33704	472.1567
$\frac{25}{64}$	1.33375	465.0537	1.33543	468.6548	1.33710	472.2699
$\frac{13}{32}$	1.33380	465.1660	1.33548	468.7676	1.33715	472.3831
$\frac{27}{64}$	1.33386	465.2784	1.33553	468.8804	1.33720	472.4963
$\frac{7}{16}$	1.33391	465.3907	1.33558	468.9932	1.33725	472.6095
$\frac{29}{64}$	1.33396	465.5031	1.33564	469.1060	1.33730	472.7227
$\frac{15}{32}$	1.33401	465.6155	1.33569	469.2188	1.33736	472.8360
$\frac{31}{64}$	1.33407	465.7279	1.33574	469.3316	1.33741	472.9492
1	1.33412	465.8403	1.33579	469.4444	1.33746	473.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.33746	473.0625	1.33912	476.6944	1.34077	480.3403
$\frac{1}{32}$	1.33751	473.1758	1.33917	476.8082	1.34083	480.4544
$\frac{1}{16}$	1.33756	473.2891	1.33922	476.9219	1.34088	480.5686
$\frac{3}{32}$	1.33762	473.4024	1.33928	477.0357	1.34093	480.6828
$\frac{1}{8}$	1.33767	473.5157	1.33933	477.1494	1.34098	480.7970
$\frac{5}{32}$	1.33772	473.6291	1.33938	477.2632	1.34103	480.9112
$\frac{3}{16}$	1.33777	473.7424	1.33943	477.3770	1.34108	481.0254
$\frac{7}{32}$	1.33782	473.8558	1.33948	477.4908	1.34114	481.1397
$\frac{1}{4}$	1.33788	473.9692	1.33953	477.6046	1.34119	481.2539
$\frac{9}{32}$	1.33793	474.0826	1.33959	477.7184	1.34124	481.3682
$\frac{5}{16}$	1.33798	474.1960	1.33964	477.8323	1.34129	481.4824
$\frac{11}{32}$	1.33803	474.3094	1.33969	477.9461	1.34134	481.5967
$\frac{3}{8}$	1.33808	474.4229	1.33974	478.0600	1.34139	481.7110
$\frac{13}{32}$	1.33813	474.5363	1.33979	478.1739	1.34144	481.8254
$\frac{7}{16}$	1.33819	474.6498	1.33984	478.2878	1.34150	481.9397
$\frac{15}{32}$	1.33824	474.7632	1.33990	478.4017	1.34155	482.0540
$\frac{1}{2}$	1.33829	474.8767	1.33995	478.5156	1.34160	482.1684
$\frac{17}{32}$	1.33834	474.9902	1.34000	478.6296	1.34165	482.2828
$\frac{9}{16}$	1.33839	475.1038	1.34005	478.7435	1.34170	482.3972
$\frac{19}{32}$	1.33845	475.2173	1.34010	478.8575	1.34175	482.5116
$\frac{5}{8}$	1.33850	475.3308	1.34015	478.9715	1.34181	482.6260
$\frac{21}{32}$	1.33855	475.4444	1.34021	479.0855	1.34186	482.7404
$\frac{11}{16}$	1.33860	475.5580	1.34026	479.1995	1.34191	482.8548
$\frac{23}{32}$	1.33865	475.6716	1.34031	479.3135	1.34196	482.9693
$\frac{3}{4}$	1.33871	475.7852	1.34036	479.4275	1.34201	483.0838
$\frac{25}{32}$	1.33876	475.8988	1.34041	479.5416	1.34206	483.1982
$\frac{13}{16}$	1.33881	476.0124	1.34046	479.6556	1.34211	483.3127
$\frac{27}{32}$	1.33886	476.1260	1.34052	479.7697	1.34217	483.4273
$\frac{7}{8}$	1.33891	476.2397	1.34057	479.8838	1.34222	483.5418
$\frac{29}{32}$	1.33896	476.3534	1.34062	479.9979	1.34227	483.6563
$\frac{15}{16}$	1.33902	476.4670	1.34067	480.1120	1.34232	483.7709
$\frac{31}{32}$	1.33907	476.5807	1.34072	480.2261	1.34237	483.8854
1	1.33912	476.6944	1.34077	480.3403	1.34242	484.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.34242	484.0000	1.34406	487.6736	1.34570	491.3611
$\frac{1}{32}$	1.34247	484.1146	1.34412	487.7886	1.34575	491.4766
$\frac{1}{16}$	1.34253	484.2292	1.34417	487.9037	1.34580	491.5920
$\frac{3}{32}$	1.34258	484.3438	1.34422	488.0187	1.34585	491.7075
$\frac{1}{8}$	1.34263	484.4584	1.34427	488.1338	1.34590	491.8230
$\frac{5}{32}$	1.34268	484.5731	1.34432	488.2489	1.34596	491.9385
$\frac{3}{16}$	1.34273	484.6877	1.34437	488.3640	1.34601	492.0541
$\frac{7}{32}$	1.34278	484.8024	1.34442	488.4791	1.34606	492.1696
$\frac{1}{4}$	1.34283	484.9171	1.34447	488.5942	1.34611	492.2852
$\frac{9}{32}$	1.34289	485.0318	1.34453	488.7093	1.34616	492.4007
$\frac{5}{16}$	1.34294	485.1465	1.34458	488.8245	1.34621	492.5163
$\frac{11}{32}$	1.34299	485.2612	1.34463	488.9396	1.34626	492.6319
$\frac{3}{8}$	1.34304	485.3760	1.34468	489.0548	1.34631	492.7475
$\frac{13}{32}$	1.34309	485.4907	1.34473	489.1700	1.34636	492.8631
$\frac{7}{16}$	1.34314	485.6055	1.34478	489.2852	1.34641	492.9788
$\frac{15}{32}$	1.34319	485.7203	1.34483	489.4004	1.34647	493.0944
$\frac{1}{2}$	1.34324	485.8351	1.34488	489.5156	1.34652	493.2101
$\frac{17}{32}$	1.34330	485.9499	1.34493	489.6309	1.34657	493.3257
$\frac{9}{16}$	1.34335	486.0647	1.34499	489.7461	1.34662	493.4414
$\frac{19}{32}$	1.34340	486.1795	1.34504	489.8614	1.34667	493.5571
$\frac{5}{8}$	1.34345	486.2944	1.34509	489.9767	1.34672	493.6729
$\frac{21}{32}$	1.34350	486.4092	1.34514	490.0920	1.34677	493.7886
$\frac{11}{16}$	1.34355	486.5241	1.34519	490.2073	1.34682	493.9043
$\frac{23}{32}$	1.34360	486.6390	1.34524	490.3226	1.34687	494.0201
$\frac{3}{4}$	1.34365	486.7539	1.34529	490.4379	1.34692	494.1359
$\frac{25}{32}$	1.34371	486.8688	1.34534	490.5533	1.34697	494.2516
$\frac{13}{16}$	1.34376	486.9838	1.34539	490.6686	1.34702	494.3674
$\frac{27}{32}$	1.34381	487.0987	1.34545	490.7840	1.34708	494.4832
$\frac{7}{8}$	1.34386	487.2136	1.34550	490.8994	1.34713	494.5991
$\frac{29}{32}$	1.34391	487.3286	1.34555	491.0148	1.34718	494.7149
$\frac{15}{16}$	1.34396	487.4436	1.34560	491.1302	1.34723	494.8308
$\frac{31}{32}$	1.34401	487.5586	1.34565	491.2457	1.34728	494.9466
1	1.34406	487.6736	1.34570	491.3611	1.34733	495.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.34733	495.0625	1.34895	498.7778	1.35057	502.5089
$\frac{1}{32}$	1.34738	495.1784	1.34900	498.8941	1.35062	502.6237
$\frac{1}{16}$	1.34743	495.2943	1.34905	499.0104	1.35067	502.7405
$\frac{3}{32}$	1.34748	495.4102	1.34911	499.1268	1.35072	502.8573
$\frac{1}{8}$	1.34753	495.5262	1.34916	499.2432	1.35077	502.9741
$\frac{5}{32}$	1.34758	495.6421	1.34921	499.3595	1.35082	503.0909
$\frac{3}{16}$	1.34763	495.7581	1.34926	499.4759	1.35087	503.2077
$\frac{7}{32}$	1.34769	495.8740	1.34931	499.5923	1.35092	503.3246
$\frac{1}{4}$	1.34774	495.9900	1.34936	499.7088	1.35097	503.4414
$\frac{9}{32}$	1.34779	496.1060	1.34941	499.8252	1.35102	503.5583
$\frac{5}{16}$	1.34784	496.2220	1.34946	499.9417	1.35108	503.6752
$\frac{11}{32}$	1.34789	496.3381	1.34951	500.0581	1.35113	503.7921
$\frac{3}{8}$	1.34794	496.4541	1.34956	500.1746	1.35118	503.9090
$\frac{13}{32}$	1.34799	496.5702	1.34961	500.2911	1.35123	504.0259
$\frac{7}{16}$	1.34804	496.6862	1.34966	500.4076	1.35128	504.1428
$\frac{15}{32}$	1.34809	496.8023	1.34971	500.5241	1.35133	504.2598
$\frac{1}{2}$	1.34814	496.9184	1.34976	500.6406	1.35138	504.3767
$\frac{17}{32}$	1.34819	497.0345	1.34981	500.7572	1.35143	504.4937
$\frac{9}{16}$	1.34824	497.1506	1.34986	500.8737	1.35148	504.6107
$\frac{19}{32}$	1.34829	497.2668	1.34991	500.9903	1.35153	504.7277
$\frac{5}{8}$	1.34835	497.3829	1.34997	501.1069	1.35158	504.8447
$\frac{21}{32}$	1.34840	497.4991	1.35002	501.2235	1.35163	504.9618
$\frac{11}{16}$	1.34845	497.6153	1.35007	501.3401	1.35168	505.0788
$\frac{23}{32}$	1.34850	497.7315	1.35012	501.4567	1.35173	505.1959
$\frac{3}{4}$	1.34855	497.8477	1.35017	501.5734	1.35178	505.3129
$\frac{25}{32}$	1.34860	497.9639	1.35022	501.6900	1.35183	505.4300
$\frac{13}{16}$	1.34865	498.0801	1.35027	501.8067	1.35188	505.5471
$\frac{27}{32}$	1.34870	498.1963	1.35032	501.9233	1.35193	505.6642
$\frac{7}{8}$	1.34875	498.3126	1.35037	502.0400	1.35198	505.7814
$\frac{29}{32}$	1.34880	498.4289	1.35042	502.1567	1.35203	505.8985
$\frac{15}{16}$	1.34885	498.5452	1.35047	502.2735	1.35208	506.0157
$\frac{31}{32}$	1.34890	498.6615	1.35052	502.3902	1.35213	506.1328
1	1.34895	498.7778	1.35057	502.5069	1.35218	506.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.35218	506.2500	1.35379	510.0089	1.35539	513.7778
$\frac{1}{32}$	1.35223	506.3672	1.35384	510.1246	1.35544	513.8958
$\frac{1}{16}$	1.35228	506.4844	1.35389	510.2422	1.35549	514.0139
$\frac{3}{32}$	1.35233	506.6016	1.35394	510.3599	1.35554	514.1320
$\frac{1}{8}$	1.35238	506.7189	1.35399	510.4775	1.35559	514.2501
$\frac{5}{32}$	1.35243	506.8361	1.35404	510.5952	1.35564	514.3682
$\frac{3}{16}$	1.35248	506.9534	1.35409	510.7129	1.35569	514.4864
$\frac{1}{4}$	1.35253	507.0706	1.35414	510.8306	1.35574	514.6045
$\frac{5}{16}$	1.35258	507.1879	1.35419	510.9484	1.35579	514.7227
$\frac{3}{8}$	1.35263	507.3052	1.35424	511.0661	1.35584	514.8408
$\frac{7}{16}$	1.35268	507.4226	1.35429	511.1838	1.35589	514.9590
$\frac{1}{2}$	1.35274	507.5399	1.35434	511.3016	1.35594	515.0772
$\frac{9}{16}$	1.35279	507.6572	1.35439	511.4194	1.35599	515.1954
$\frac{5}{8}$	1.35284	507.7746	1.35444	511.5372	1.35604	515.3136
$\frac{11}{16}$	1.35289	507.8920	1.35449	511.6550	1.35609	515.4319
$\frac{3}{4}$	1.35294	508.0093	1.35454	511.7728	1.35614	515.5501
$\frac{7}{8}$	1.35299	508.1267	1.35459	511.8906	1.35619	515.6684
$\frac{15}{16}$	1.35304	508.2441	1.35464	512.0085	1.35624	515.7867
$\frac{1}{1}$	1.35309	508.3616	1.35469	512.1263	1.35628	515.9050
$\frac{1}{2}$	1.35314	508.4790	1.35474	512.2442	1.35633	516.0233
$\frac{3}{4}$	1.35319	508.5965	1.35479	512.3621	1.35638	516.1416
$\frac{7}{8}$	1.35324	508.7139	1.35484	512.4800	1.35643	516.2599
$\frac{15}{16}$	1.35329	508.8314	1.35489	512.5979	1.35648	516.3783
$\frac{1}{1}$	1.35334	508.9489	1.35494	512.7158	1.35653	516.4966
$\frac{1}{2}$	1.35339	509.0664	1.35499	512.8338	1.35658	516.6150
$\frac{3}{4}$	1.35344	509.1839	1.35504	512.9517	1.35663	516.7334
$\frac{7}{8}$	1.35349	509.3015	1.35509	513.0697	1.35668	516.8518
$\frac{15}{16}$	1.35354	509.4190	1.35514	513.1877	1.35673	516.9702
$\frac{1}{1}$	1.35359	509.5366	1.35519	513.3057	1.35678	517.0887
$\frac{1}{2}$	1.35364	509.6541	1.35524	513.4237	1.35683	517.2071
$\frac{3}{4}$	1.35369	509.7717	1.35529	513.5417	1.35688	517.3255
$\frac{7}{8}$	1.35374	509.8893	1.35534	513.6597	1.35693	517.4440
$\frac{15}{16}$	1.35379	510.0069	1.35539	513.7778	1.35698	517.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.35698	517.5625	1.35857	521.3611	1.36015	525.1736
$\frac{1}{32}$	1.35703	517.6810	1.35862	521.4800	1.36020	525.2930
$\frac{1}{16}$	1.35708	517.7995	1.35867	521.5990	1.36025	525.4124
$\frac{3}{32}$	1.35713	517.9180	1.35872	521.7179	1.36030	525.5317
$\frac{1}{8}$	1.35718	518.0366	1.35877	521.8369	1.36035	525.6512
$\frac{5}{32}$	1.35723	518.1551	1.35882	521.9559	1.36040	525.7706
$\frac{3}{16}$	1.35728	518.2737	1.35887	522.0749	1.36045	525.8900
$\frac{7}{32}$	1.35733	518.3923	1.35892	522.1939	1.36050	526.0094
$\frac{1}{4}$	1.35738	518.5109	1.35897	522.3129	1.36055	526.1289
$\frac{9}{32}$	1.35743	518.6295	1.35901	522.4320	1.36060	526.2484
$\frac{5}{16}$	1.35748	518.7481	1.35906	522.5510	1.36064	526.3679
$\frac{11}{32}$	1.35753	518.8667	1.35911	522.6701	1.36069	526.4874
$\frac{3}{8}$	1.35758	518.9854	1.35916	522.7892	1.36074	526.6069
$\frac{13}{32}$	1.35763	519.1040	1.35921	522.9083	1.36079	526.7264
$\frac{7}{16}$	1.35768	519.2227	1.35926	523.0274	1.36084	526.8459
$\frac{15}{32}$	1.35773	519.3414	1.35931	523.1465	1.36089	526.9655
$\frac{1}{2}$	1.35778	519.4601	1.35936	523.2656	1.36094	527.0851
$\frac{17}{32}$	1.35783	519.5788	1.35941	523.3848	1.36099	527.2047
$\frac{9}{16}$	1.35788	519.6975	1.35946	523.5039	1.36104	527.3242
$\frac{19}{32}$	1.35792	519.8163	1.35951	523.6231	1.36109	527.4439
$\frac{5}{8}$	1.35797	519.9350	1.35956	523.7423	1.36114	527.5635
$\frac{21}{32}$	1.35802	520.0538	1.35961	523.8615	1.36119	527.6831
$\frac{11}{16}$	1.35807	520.1726	1.35966	523.9807	1.36124	527.8028
$\frac{23}{32}$	1.35812	520.2913	1.35971	524.0999	1.36129	527.9224
$\frac{3}{4}$	1.35817	520.4102	1.35976	524.2192	1.36133	528.0421
$\frac{25}{32}$	1.35822	520.5290	1.35981	524.3384	1.36138	528.1618
$\frac{13}{16}$	1.35827	520.6478	1.35986	524.4577	1.36143	528.2815
$\frac{27}{32}$	1.35832	520.7667	1.35990	524.5770	1.36148	528.4012
$\frac{7}{8}$	1.35837	520.8855	1.35995	524.6963	1.36153	528.5209
$\frac{29}{32}$	1.35842	521.0044	1.36000	524.8156	1.36158	528.6407
$\frac{15}{16}$	1.35847	521.1233	1.36005	524.9349	1.36163	528.7604
$\frac{31}{32}$	1.35852	521.2422	1.36010	525.0543	1.36168	528.8802
1	1.35857	521.3611	1.36015	525.1736	1.36173	529.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.36173	529.0000	1.36330	532.8403	1.36486	536.6944
$\frac{1}{32}$	1.36178	529.1198	1.36335	532.9005	1.36491	536.8151
$\frac{1}{16}$	1.36183	529.2396	1.36340	533.0808	1.36496	536.9358
$\frac{3}{32}$	1.36188	529.3594	1.36345	533.2010	1.36501	537.0565
$\frac{1}{8}$	1.36192	529.4793	1.36349	533.3213	1.36506	537.1772
$\frac{5}{32}$	1.36197	529.5991	1.36354	533.4416	1.36511	537.2979
$\frac{3}{16}$	1.36202	529.7190	1.36359	533.5619	1.36516	537.4186
$\frac{7}{32}$	1.36207	529.8389	1.36364	533.6822	1.36521	537.5394
$\frac{1}{4}$	1.36212	529.9588	1.36369	533.8025	1.36525	537.6602
$\frac{9}{32}$	1.36217	530.0787	1.36374	533.9229	1.36530	537.7809
$\frac{5}{16}$	1.36222	530.1986	1.36379	534.0432	1.36535	537.9017
$\frac{11}{32}$	1.36227	530.3185	1.36384	534.1636	1.36540	538.0225
$\frac{3}{8}$	1.36232	530.4385	1.36389	534.2840	1.36545	538.1433
$\frac{13}{32}$	1.36237	530.5584	1.36393	534.4044	1.36550	538.2642
$\frac{7}{16}$	1.36242	530.6784	1.36398	534.5248	1.36555	538.3850
$\frac{15}{32}$	1.36246	530.7984	1.36403	534.6452	1.36560	538.5059
$\frac{1}{2}$	1.36251	530.9184	1.36408	534.7656	1.36564	538.6267
$\frac{17}{32}$	1.36256	531.0384	1.36413	534.8861	1.36569	538.7476
$\frac{9}{16}$	1.36261	531.1584	1.36418	535.0065	1.36574	538.8685
$\frac{19}{32}$	1.36266	531.2785	1.36423	535.1270	1.36579	538.9894
$\frac{5}{8}$	1.36271	531.3985	1.36428	535.2475	1.36584	539.1104
$\frac{21}{32}$	1.36276	531.5186	1.36433	535.3680	1.36589	539.2313
$\frac{11}{16}$	1.36281	531.6387	1.36438	535.4885	1.36594	539.3522
$\frac{23}{32}$	1.36286	531.7588	1.36442	535.6091	1.36598	539.4732
$\frac{3}{4}$	1.36291	531.8789	1.36447	535.7296	1.36603	539.5942
$\frac{25}{32}$	1.36296	531.9990	1.36452	535.8502	1.36608	539.7152
$\frac{13}{16}$	1.36300	532.1192	1.36457	535.9707	1.36613	539.8362
$\frac{27}{32}$	1.36305	532.2393	1.36462	536.0913	1.36618	539.9572
$\frac{7}{8}$	1.36310	532.3595	1.36467	536.2119	1.36623	540.0782
$\frac{29}{32}$	1.36315	532.4797	1.36472	536.3325	1.36628	540.1993
$\frac{15}{16}$	1.36320	532.5999	1.36477	536.4532	1.36633	540.3203
$\frac{31}{32}$	1.36325	532.7201	1.36481	536.5738	1.36637	540.4414
1	1.36330	532.8403	1.36486	536.6944	1.36642	540.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.36642	540.5625	1.36798	544.4444	1.36953	548.3403
$\frac{1}{32}$	1.36647	540.6836	1.36803	544.5680	1.36957	548.4622
$\frac{1}{16}$	1.36652	540.8047	1.36807	544.6875	1.36962	548.5842
$\frac{3}{32}$	1.36657	540.9258	1.36812	544.8091	1.36967	548.7062
$\frac{1}{8}$	1.36662	541.0470	1.36817	544.9307	1.36972	548.8282
$\frac{5}{32}$	1.36667	541.1681	1.36822	545.0523	1.36977	548.9503
$\frac{3}{16}$	1.36671	541.2893	1.36827	545.1739	1.36981	549.0723
$\frac{7}{32}$	1.36676	541.4105	1.36832	545.2955	1.36986	549.1943
$\frac{1}{4}$	1.36681	541.5317	1.36836	545.4171	1.36991	549.3164
$\frac{9}{32}$	1.36686	541.6529	1.36841	545.5387	1.36996	549.4385
$\frac{5}{16}$	1.36691	541.7741	1.36846	545.6604	1.37001	549.5606
$\frac{11}{32}$	1.36696	541.8954	1.36851	545.7821	1.37006	549.6827
$\frac{3}{8}$	1.36701	542.0166	1.36856	545.9038	1.37010	549.8048
$\frac{13}{32}$	1.36705	542.1379	1.36861	546.0255	1.37015	549.9269
$\frac{7}{16}$	1.36710	542.2591	1.36865	546.1472	1.37020	550.0491
$\frac{15}{32}$	1.36715	542.3804	1.36870	546.2689	1.37025	550.1712
$\frac{1}{2}$	1.36720	542.5017	1.36875	546.3906	1.37030	550.2934
$\frac{17}{32}$	1.36725	542.6231	1.36880	546.5124	1.37035	550.4156
$\frac{9}{16}$	1.36730	542.7444	1.36885	546.6341	1.37039	550.5378
$\frac{19}{32}$	1.36735	542.8657	1.36890	546.7559	1.37044	550.6600
$\frac{5}{8}$	1.36739	542.9871	1.36895	546.8777	1.37049	550.7822
$\frac{21}{32}$	1.36744	543.1085	1.36899	546.9995	1.37054	550.9045
$\frac{11}{16}$	1.36749	543.2298	1.36904	547.1213	1.37059	551.0267
$\frac{23}{32}$	1.36754	543.3512	1.36909	547.2432	1.37063	551.1490
$\frac{3}{4}$	1.36759	543.4727	1.36914	547.3650	1.37068	551.2713
$\frac{25}{32}$	1.36764	543.5941	1.36919	547.4869	1.37073	551.3936
$\frac{13}{16}$	1.36769	543.7155	1.36924	547.6088	1.37078	551.5159
$\frac{27}{32}$	1.36773	543.8370	1.36928	547.7306	1.37083	551.6382
$\frac{7}{8}$	1.36778	543.9584	1.36933	547.8525	1.37088	551.7605
$\frac{29}{32}$	1.36783	544.0799	1.36938	547.9745	1.37092	551.8829
$\frac{15}{16}$	1.36788	544.2014	1.36943	548.0964	1.37097	552.0052
$\frac{31}{32}$	1.36793	544.3229	1.36948	548.2183	1.37102	552.1276
1	1.36798	544.4444	1.36953	548.3403	1.37107	552.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.37107	552.2500	1.37261	556.1736	1.37414	560.1111
$\frac{1}{32}$	1.37112	552.3724	1.37265	556.2964	1.37418	560.2344
$\frac{1}{16}$	1.37116	552.4948	1.37270	556.4193	1.37423	560.3577
$\frac{3}{32}$	1.37121	552.6172	1.37275	556.5422	1.37428	560.4810
$\frac{1}{8}$	1.37126	552.7397	1.37280	556.6650	1.37433	560.6043
$\frac{5}{32}$	1.37131	552.8621	1.37284	556.7879	1.37438	560.7276
$\frac{3}{16}$	1.37136	552.9846	1.37289	556.9108	1.37442	560.8509
$\frac{7}{32}$	1.37140	553.1071	1.37294	557.0338	1.37447	560.9743
$\frac{1}{4}$	1.37145	553.2296	1.37299	557.1567	1.37452	561.0977
$\frac{9}{32}$	1.37150	553.3521	1.37304	557.2796	1.37457	561.2210
$\frac{5}{16}$	1.37155	553.4746	1.37308	557.4026	1.37461	561.3444
$\frac{11}{32}$	1.37160	553.5972	1.37313	557.5256	1.37466	561.4678
$\frac{3}{8}$	1.37164	553.7197	1.37318	557.6485	1.37471	561.5913
$\frac{13}{32}$	1.37169	553.8423	1.37323	557.7715	1.37476	561.7147
$\frac{7}{16}$	1.37174	553.9649	1.37328	557.8946	1.37481	561.8381
$\frac{15}{32}$	1.37179	554.0875	1.37332	558.0176	1.37485	561.9616
$\frac{1}{2}$	1.37184	554.2101	1.37337	558.1406	1.37490	562.0851
$\frac{17}{32}$	1.37189	554.3327	1.37342	558.2637	1.37495	562.2086
$\frac{9}{16}$	1.37193	554.4553	1.37347	558.3867	1.37500	562.3321
$\frac{19}{32}$	1.37198	554.5780	1.37352	558.5098	1.37504	562.4556
$\frac{5}{8}$	1.37203	554.7006	1.37356	558.6329	1.37509	562.5791
$\frac{21}{32}$	1.37208	554.8233	1.37361	558.7560	1.37514	562.7026
$\frac{11}{16}$	1.37213	554.9460	1.37366	558.8792	1.37519	562.8262
$\frac{23}{32}$	1.37217	555.0687	1.37371	559.0023	1.37523	562.9498
$\frac{3}{4}$	1.37222	555.1914	1.37375	559.1254	1.37528	563.0734
$\frac{25}{32}$	1.37227	555.3141	1.37380	559.2486	1.37533	563.1969
$\frac{13}{16}$	1.37232	555.4369	1.37385	559.3718	1.37538	563.3206
$\frac{27}{32}$	1.37237	555.5596	1.37390	559.4950	1.37543	563.4442
$\frac{7}{8}$	1.37241	555.6824	1.37395	559.6182	1.37547	563.5678
$\frac{29}{32}$	1.37246	555.8052	1.37399	559.7414	1.37552	563.6915
$\frac{15}{16}$	1.37251	555.9280	1.37404	559.8646	1.37557	563.8151
$\frac{31}{32}$	1.37256	556.0508	1.37409	559.9879	1.37562	563.9388
1	1.37261	556.1736	1.37414	560.1111	1.37566	564.0625

# 23'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.37566	564.0625	1.37718	568.0278	1.37870	572.0069
$\frac{1}{32}$	1.37571	564.1862	1.37723	568.1519	1.37875	572.1315
$\frac{1}{16}$	1.37576	564.3099	1.37728	568.2761	1.37880	572.2561
$\frac{3}{32}$	1.37581	564.4337	1.37733	568.4002	1.37884	572.3807
$\frac{1}{8}$	1.37585	564.5574	1.37737	568.5244	1.37889	572.5053
$\frac{5}{32}$	1.37590	564.6812	1.37742	568.6486	1.37894	572.6299
$\frac{3}{16}$	1.37595	564.8049	1.37747	568.7728	1.37898	572.7546
$\frac{7}{32}$	1.37600	564.9287	1.37752	568.8970	1.37903	572.8792
$\frac{1}{4}$	1.37604	565.0525	1.37756	569.0213	1.37908	573.0039
$\frac{9}{32}$	1.37609	565.1763	1.37761	569.1455	1.37913	573.1286
$\frac{5}{16}$	1.37614	565.3002	1.37766	569.2698	1.37917	573.2533
$\frac{11}{32}$	1.37619	565.4240	1.37771	569.3940	1.37922	573.3780
$\frac{3}{8}$	1.37623	565.5479	1.37775	569.5183	1.37927	573.5027
$\frac{13}{32}$	1.37628	565.6717	1.37780	569.6426	1.37931	573.6274
$\frac{7}{16}$	1.37633	565.7956	1.37785	569.7670	1.37936	573.7522
$\frac{15}{32}$	1.37638	565.9195	1.37790	569.8913	1.37941	573.8770
$\frac{1}{2}$	1.37642	566.0434	1.37794	570.0156	1.37946	574.0017
$\frac{17}{32}$	1.37647	566.1673	1.37799	570.1400	1.37950	574.1265
$\frac{9}{16}$	1.37652	566.2913	1.37804	570.2644	1.37955	574.2513
$\frac{19}{32}$	1.37657	566.4152	1.37809	570.3887	1.37960	574.3761
$\frac{5}{8}$	1.37661	566.5392	1.37813	570.5131	1.37965	574.5010
$\frac{21}{32}$	1.37666	566.6631	1.37818	570.6375	1.37969	574.6258
$\frac{11}{16}$	1.37671	566.7871	1.37823	570.7620	1.37974	574.7507
$\frac{23}{32}$	1.37676	566.9111	1.37827	570.8864	1.37979	574.8755
$\frac{3}{4}$	1.37680	567.0352	1.37832	571.0109	1.37983	575.0004
$\frac{25}{32}$	1.37685	567.1592	1.37837	571.1353	1.37988	575.1253
$\frac{13}{16}$	1.37690	567.2832	1.37842	571.2598	1.37993	575.2502
$\frac{27}{32}$	1.37695	567.4073	1.37846	571.3843	1.37998	575.3752
$\frac{7}{8}$	1.37699	567.5314	1.37851	571.5088	1.38002	575.5001
$\frac{29}{32}$	1.37704	567.6554	1.37856	571.6333	1.38007	575.6251
$\frac{15}{16}$	1.37709	567.7795	1.37861	571.7578	1.38012	575.7500
$\frac{31}{32}$	1.37714	567.9037	1.37865	571.8824	1.38016	575.8750
1	1.37718	568.0278	1.37870	572.0069	1.38021	576.0000

Fractions of an inch.	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.38021	576.0000	1.38172	580.0069	1.38322	584.0278
$\frac{1}{32}$	1.38026	576.1250	1.38176	580.1324	1.38326	584.1537
$\frac{1}{16}$	1.38031	576.2500	1.38181	580.2578	1.38331	584.2795
$\frac{3}{32}$	1.38035	576.3751	1.38186	580.3833	1.38336	584.4054
$\frac{1}{8}$	1.38040	576.5001	1.38190	580.5088	1.38340	584.5314
$\frac{5}{32}$	1.38045	576.6252	1.38195	580.6343	1.38345	584.6573
$\frac{3}{16}$	1.38049	576.7502	1.38200	580.7598	1.38350	584.7832
$\frac{7}{32}$	1.38054	576.8753	1.38205	580.8853	1.38354	584.9092
$\frac{1}{4}$	1.38059	577.0004	1.38209	581.0109	1.38359	585.0352
$\frac{9}{32}$	1.38064	577.1255	1.38214	581.1364	1.38364	585.1611
$\frac{5}{16}$	1.38068	577.2507	1.38219	581.2620	1.38368	585.2871
$\frac{11}{32}$	1.38073	577.3758	1.38223	581.3875	1.38373	585.4131
$\frac{3}{8}$	1.38078	577.5010	1.38228	581.5131	1.38378	585.5392
$\frac{13}{32}$	1.38082	577.6261	1.38233	581.6387	1.38382	585.6652
$\frac{7}{16}$	1.38087	577.7513	1.38237	581.7644	1.38387	585.7913
$\frac{15}{32}$	1.38092	577.8765	1.38242	581.8900	1.38392	585.9173
$\frac{1}{2}$	1.38096	578.0017	1.38247	582.0156	1.38396	586.0434
$\frac{17}{32}$	1.38101	578.1270	1.38251	582.1413	1.38401	586.1695
$\frac{9}{16}$	1.38106	578.2522	1.38256	582.2670	1.38406	586.2956
$\frac{19}{32}$	1.38111	578.3774	1.38261	582.3926	1.38411	586.4217
$\frac{5}{8}$	1.38115	578.5027	1.38265	582.5183	1.38415	586.5479
$\frac{21}{32}$	1.38120	578.6280	1.38270	582.6440	1.38420	586.6740
$\frac{11}{16}$	1.38125	578.7533	1.38275	582.7698	1.38425	586.8002
$\frac{23}{32}$	1.38129	578.8786	1.38280	582.8955	1.38429	586.9263
$\frac{3}{4}$	1.38134	579.0039	1.38284	583.0213	1.38434	587.0525
$\frac{25}{32}$	1.38139	579.1292	1.38289	583.1470	1.38439	587.1787
$\frac{13}{16}$	1.38143	579.2546	1.38294	583.2728	1.38443	587.3049
$\frac{27}{32}$	1.38148	579.3799	1.38298	583.3986	1.38448	587.4312
$\frac{7}{8}$	1.38153	579.5053	1.38303	583.5244	1.38453	587.5574
$\frac{29}{32}$	1.38158	579.6307	1.38308	583.6502	1.38457	587.6837
$\frac{15}{16}$	1.38162	579.7561	1.38312	583.7761	1.38462	587.8099
$\frac{31}{32}$	1.38167	579.8815	1.38317	583.9019	1.38467	587.9362
1	1.38172	580.0069	1.38322	584.0278	1.38471	588.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.38471	588.0625	1.38620	592.1111	1.38769	596.1736
$\frac{1}{32}$	1.38476	588.1888	1.38625	592.2379	1.38773	596.3008
$\frac{1}{16}$	1.38481	588.3151	1.38629	592.3646	1.38778	596.4280
$\frac{3}{32}$	1.38485	588.4415	1.38634	592.4914	1.38783	596.5552
$\frac{1}{8}$	1.38490	588.5678	1.38639	592.6182	1.38787	596.6824
$\frac{5}{32}$	1.38494	588.6942	1.38643	592.7450	1.38792	596.8096
$\frac{3}{16}$	1.38499	588.8206	1.38648	592.8718	1.38796	596.9369
$\frac{7}{32}$	1.38504	588.9469	1.38653	592.9986	1.38801	597.0641
$\frac{1}{4}$	1.38508	589.0734	1.38657	593.1254	1.38806	597.1914
$\frac{9}{32}$	1.38513	589.1998	1.38662	593.2523	1.38810	597.3187
$\frac{5}{16}$	1.38518	589.3262	1.38667	593.3792	1.38815	597.4460
$\frac{11}{32}$	1.38522	589.4526	1.38671	593.5060	1.38820	597.5733
$\frac{3}{8}$	1.38527	589.5791	1.38676	593.6329	1.38824	597.7006
$\frac{13}{32}$	1.38532	589.7056	1.38681	593.7598	1.38829	597.8280
$\frac{7}{16}$	1.38536	589.8321	1.38685	593.8867	1.38833	597.9553
$\frac{15}{32}$	1.38541	589.9586	1.38690	594.0137	1.38838	598.0827
$\frac{1}{2}$	1.38546	590.0851	1.38694	594.1406	1.38843	598.2101
$\frac{17}{32}$	1.38550	590.2116	1.38699	594.2676	1.38847	598.3375
$\frac{9}{16}$	1.38555	590.3381	1.38704	594.3946	1.38852	598.4649
$\frac{19}{32}$	1.38560	590.4647	1.38708	594.5215	1.38857	598.5923
$\frac{5}{8}$	1.38564	590.5913	1.38713	594.6485	1.38861	598.7197
$\frac{21}{32}$	1.38569	590.7178	1.38718	594.7756	1.38866	598.8472
$\frac{11}{16}$	1.38574	590.8444	1.38722	594.9026	1.38870	598.9746
$\frac{23}{32}$	1.38578	590.9710	1.38727	595.0296	1.38875	599.1021
$\frac{3}{4}$	1.38583	591.0977	1.38732	595.1567	1.38880	599.2296
$\frac{25}{32}$	1.38588	591.2243	1.38736	595.2838	1.38884	599.3571
$\frac{13}{16}$	1.38592	591.3509	1.38741	595.4108	1.38889	599.4846
$\frac{27}{32}$	1.38597	591.4776	1.38745	595.5379	1.38894	599.6121
$\frac{7}{8}$	1.38602	591.6043	1.38750	595.6650	1.38898	599.7397
$\frac{29}{32}$	1.38606	591.7310	1.38755	595.7922	1.38903	599.8672
$\frac{15}{16}$	1.38611	591.8577	1.38759	595.9193	1.38907	599.9948
$\frac{31}{32}$	1.38616	591.9844	1.38764	596.0464	1.38912	600.1224
1	1.38620	592.1111	1.38769	596.1736	1.38917	600.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.38917	600.2500	1.39064	604.3403	1.39211	608.4444
$\frac{1}{32}$	1.38921	600.3776	1.39069	604.4683	1.39216	608.5729
$\frac{1}{16}$	1.38926	600.5052	1.39073	604.5964	1.39220	608.7014
$\frac{3}{32}$	1.38930	600.6329	1.39078	604.7245	1.39225	608.8299
$\frac{1}{8}$	1.38935	600.7605	1.39082	604.8525	1.39229	608.9584
$\frac{5}{32}$	1.38940	600.8882	1.39087	604.9806	1.39234	609.0870
$\frac{3}{16}$	1.38944	601.0159	1.39092	605.1088	1.39239	609.2155
$\frac{7}{32}$	1.38949	601.1436	1.39096	605.2369	1.39243	609.3441
$\frac{1}{4}$	1.38954	601.2713	1.39101	605.3650	1.39248	609.4727
$\frac{9}{32}$	1.38958	601.3990	1.39105	605.4932	1.39252	609.6012
$\frac{5}{16}$	1.38963	601.5267	1.39110	605.6213	1.39257	609.7298
$\frac{11}{32}$	1.38967	601.6545	1.39115	605.7495	1.39261	609.8585
$\frac{3}{8}$	1.38972	601.7822	1.39119	605.8777	1.39266	609.9871
$\frac{13}{32}$	1.38977	601.9100	1.39124	606.0059	1.39271	610.1157
$\frac{7}{16}$	1.38981	602.0378	1.39128	606.1341	1.39275	610.2444
$\frac{15}{32}$	1.38986	602.1656	1.39133	606.2624	1.39280	610.3731
$\frac{1}{2}$	1.38990	602.2934	1.39138	606.3906	1.39284	610.5017
$\frac{17}{32}$	1.38995	602.4212	1.39142	606.5189	1.39289	610.6304
$\frac{9}{16}$	1.39000	602.5491	1.39147	606.6472	1.39293	610.7591
$\frac{19}{32}$	1.39004	602.6769	1.39151	606.7755	1.39298	610.8879
$\frac{5}{8}$	1.39009	602.8048	1.39156	606.9038	1.39303	611.0166
$\frac{21}{32}$	1.39013	602.9327	1.39161	607.0321	1.39307	611.1454
$\frac{11}{16}$	1.39018	603.0606	1.39165	607.1604	1.39312	611.2741
$\frac{23}{32}$	1.39023	603.1885	1.39170	607.2887	1.39316	611.4029
$\frac{3}{4}$	1.39027	603.3164	1.39174	607.4171	1.39321	611.5317
$\frac{25}{32}$	1.39032	603.4443	1.39179	607.5455	1.39326	611.6605
$\frac{13}{16}$	1.39036	603.5723	1.39184	607.6739	1.39330	611.7893
$\frac{27}{32}$	1.39041	603.7003	1.39188	607.8023	1.39335	611.9181
$\frac{7}{8}$	1.39046	603.8282	1.39193	607.9307	1.39339	612.0470
$\frac{29}{32}$	1.39050	603.9562	1.39197	608.0591	1.39344	612.1758
$\frac{15}{16}$	1.39055	604.0842	1.39202	608.1875	1.39348	612.3047
$\frac{31}{32}$	1.39059	604.2122	1.39206	608.3160	1.39353	612.4336
1	1.39064	604.3403	1.39211	608.4444	1.39358	612.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.39358	612.5625	1.39504	616.6944	1.39649	620.8403
$\frac{1}{32}$	1.39362	612.6914	1.39508	616.8238	1.39654	620.9701
$\frac{1}{16}$	1.39367	612.8203	1.39513	616.9532	1.39658	621.0999
$\frac{3}{32}$	1.39371	612.9493	1.39517	617.0825	1.39663	621.2297
$\frac{1}{8}$	1.39376	613.0782	1.39522	617.2119	1.39667	621.3595
$\frac{5}{32}$	1.39380	613.2072	1.39526	617.3413	1.39672	621.4893
$\frac{3}{16}$	1.39385	613.3362	1.39531	617.4707	1.39676	621.6192
$\frac{7}{32}$	1.39389	613.4652	1.39535	617.6002	1.39681	621.7490
$\frac{1}{4}$	1.39394	613.5942	1.39540	617.7296	1.39685	621.8789
$\frac{9}{32}$	1.39399	613.7232	1.39544	617.8591	1.39690	622.0088
$\frac{5}{16}$	1.39403	613.8522	1.39549	617.9885	1.39694	622.1387
$\frac{11}{32}$	1.39408	613.9813	1.39554	618.1180	1.39699	622.2686
$\frac{3}{8}$	1.39412	614.1104	1.39558	618.2475	1.39703	622.3985
$\frac{13}{32}$	1.39417	614.2394	1.39563	618.3770	1.39708	622.5285
$\frac{7}{16}$	1.39421	614.3685	1.39567	618.5065	1.39712	622.6584
$\frac{15}{32}$	1.39426	614.4976	1.39572	618.6361	1.39717	622.7884
$\frac{1}{2}$	1.39431	614.6267	1.39576	618.7656	1.39722	622.9184
$\frac{17}{32}$	1.39435	614.7559	1.39581	618.8952	1.39726	623.0484
$\frac{9}{16}$	1.39440	614.8850	1.39585	619.0248	1.39731	623.1784
$\frac{19}{32}$	1.39444	615.0142	1.39590	619.1544	1.39735	623.3084
$\frac{5}{8}$	1.39449	615.1433	1.39594	619.2840	1.39740	623.4385
$\frac{21}{32}$	1.39453	615.2725	1.39599	619.4136	1.39744	623.5685
$\frac{11}{16}$	1.39458	615.4017	1.39604	619.5432	1.39749	623.6986
$\frac{23}{32}$	1.39462	615.5309	1.39608	619.6729	1.39753	623.8287
$\frac{3}{4}$	1.39467	615.6602	1.39613	619.8025	1.39758	623.9588
$\frac{25}{32}$	1.39472	615.7894	1.39617	619.9322	1.39762	624.0889
$\frac{13}{16}$	1.39476	615.9186	1.39622	620.0619	1.39767	624.2190
$\frac{27}{32}$	1.39481	616.0479	1.39626	620.1916	1.39771	624.3491
$\frac{7}{8}$	1.39485	616.1772	1.39631	620.3213	1.39776	624.4793
$\frac{29}{32}$	1.39490	616.3065	1.39635	620.4510	1.39780	624.6094
$\frac{15}{16}$	1.39494	616.4358	1.39640	620.5808	1.39785	624.7396
$\frac{31}{32}$	1.39499	616.5651	1.39644	620.7105	1.39789	624.8698
1	1.39504	616.6944	1.39649	620.8403	1.39794	625.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.39794	625.0000	1.39839	629.1736	1.40083	633.3611
$\frac{1}{32}$	1.39799	625.1302	1.39943	629.3043	1.40087	633.4922
$\frac{1}{16}$	1.39803	625.2604	1.39948	629.4349	1.40092	633.6233
$\frac{3}{32}$	1.39808	625.3907	1.39952	629.5656	1.40096	633.7544
$\frac{1}{8}$	1.39812	625.5209	1.39957	629.6963	1.40101	633.8855
$\frac{5}{32}$	1.39817	625.6512	1.39961	629.8270	1.40105	634.0167
$\frac{3}{16}$	1.39821	625.7815	1.39966	629.9577	1.40110	634.1478
$\frac{7}{32}$	1.39826	625.9118	1.39970	630.0884	1.40114	634.2790
$\frac{1}{4}$	1.39830	626.0421	1.39975	630.2192	1.40119	634.4102
$\frac{9}{32}$	1.39835	626.1724	1.39979	630.3499	1.40123	634.5413
$\frac{5}{16}$	1.39839	626.3028	1.39984	630.4807	1.40127	634.6726
$\frac{11}{32}$	1.39844	626.4331	1.39988	630.6115	1.40132	634.8038
$\frac{3}{8}$	1.39848	626.5635	1.39993	630.7423	1.40136	634.9350
$\frac{13}{32}$	1.39853	626.6939	1.39997	630.8731	1.40141	635.0663
$\frac{7}{16}$	1.39857	626.8242	1.40002	631.0039	1.40145	635.1975
$\frac{15}{32}$	1.39862	626.9547	1.40006	631.1348	1.40150	635.3288
$\frac{1}{2}$	1.39866	627.0851	1.40011	631.2656	1.40154	635.4601
$\frac{17}{32}$	1.39871	627.2155	1.40015	631.3965	1.40159	635.5914
$\frac{9}{16}$	1.39875	627.3459	1.40020	631.5274	1.40163	635.7227
$\frac{19}{32}$	1.39880	627.4764	1.40024	631.6583	1.40168	635.8540
$\frac{5}{8}$	1.39884	627.6069	1.40029	631.7892	1.40172	635.9854
$\frac{21}{32}$	1.39889	627.7374	1.40033	631.9201	1.40177	636.1167
$\frac{11}{16}$	1.39893	627.8679	1.40038	632.0510	1.40181	636.2481
$\frac{23}{32}$	1.39898	627.9984	1.40042	632.1820	1.40186	636.3795
$\frac{3}{4}$	1.39902	628.1289	1.40047	632.3129	1.40190	636.5109
$\frac{25}{32}$	1.39907	628.2594	1.40051	632.4439	1.40195	636.6423
$\frac{13}{16}$	1.39911	628.3900	1.40056	632.5749	1.40199	636.7737
$\frac{27}{32}$	1.39916	628.5206	1.40060	632.7059	1.40204	636.9051
$\frac{7}{8}$	1.39920	628.6512	1.40065	632.8369	1.40208	637.0366
$\frac{29}{32}$	1.39925	628.7817	1.40069	632.9679	1.40213	637.1680
$\frac{15}{16}$	1.39930	628.9124	1.40074	633.0990	1.40217	637.2995
$\frac{31}{32}$	1.39934	629.0430	1.40078	633.2300	1.40222	637.4310
1	1.39939	629.1736	1.40083	633.3611	1.40226	637.5625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.40226	637.5625	1.40369	641.7778	1.40512	646.0069
$\frac{1}{32}$	1.40231	637.6940	1.40374	641.9097	1.40516	646.1393
$\frac{1}{16}$	1.40235	637.8255	1.40378	642.0417	1.40521	646.2717
$\frac{3}{32}$	1.40240	637.9571	1.40383	642.1737	1.40525	646.4041
$\frac{1}{8}$	1.40244	638.0887	1.40387	642.3057	1.40530	646.5366
$\frac{5}{32}$	1.40249	638.2202	1.40392	642.4377	1.40534	646.6690
$\frac{3}{16}$	1.40253	638.3518	1.40396	642.5697	1.40539	646.8015
$\frac{7}{32}$	1.40257	638.4834	1.40400	642.7017	1.40543	646.9339
$\frac{1}{4}$	1.40262	638.6150	1.40405	642.8338	1.40547	647.0664
$\frac{9}{32}$	1.40266	638.7466	1.40409	642.9658	1.40552	647.1989
$\frac{5}{16}$	1.40271	638.8783	1.40414	643.0979	1.40556	647.3314
$\frac{11}{32}$	1.40275	639.0099	1.40418	643.2300	1.40561	647.4639
$\frac{3}{8}$	1.40280	639.1416	1.40423	643.3621	1.40565	647.5965
$\frac{13}{32}$	1.40284	639.2733	1.40427	643.4942	1.40570	647.7290
$\frac{7}{16}$	1.40289	639.4050	1.40432	643.6263	1.40574	647.8616
$\frac{15}{32}$	1.40293	639.5367	1.40436	643.7585	1.40579	647.9941
$\frac{1}{2}$	1.40298	639.6684	1.40441	643.8906	1.40583	648.1267
$\frac{17}{32}$	1.40302	639.8001	1.40445	644.0228	1.40587	648.2593
$\frac{9}{16}$	1.40307	639.9319	1.40450	644.1550	1.40592	648.3920
$\frac{19}{32}$	1.40311	640.0636	1.40454	644.2872	1.40596	648.5246
$\frac{5}{8}$	1.40316	640.1954	1.40458	644.4194	1.40601	648.6572
$\frac{21}{32}$	1.40320	640.3272	1.40463	644.5516	1.40605	648.7899
$\frac{11}{16}$	1.40325	640.4590	1.40467	644.6838	1.40610	648.9226
$\frac{23}{32}$	1.40329	640.5908	1.40472	644.8161	1.40614	649.0552
$\frac{3}{4}$	1.40334	640.7227	1.40476	644.9484	1.40619	649.1879
$\frac{25}{32}$	1.40338	640.8545	1.40481	645.0806	1.40623	649.3206
$\frac{13}{16}$	1.40342	640.9864	1.40485	645.2129	1.40627	649.4534
$\frac{27}{32}$	1.40347	641.1182	1.40490	645.3452	1.40632	649.5861
$\frac{7}{8}$	1.40351	641.2501	1.40494	645.4775	1.40636	649.7189
$\frac{29}{32}$	1.40356	641.3820	1.40499	645.6099	1.40641	649.8516
$\frac{15}{16}$	1.40360	641.5139	1.40503	645.7422	1.40645	649.9844
$\frac{31}{32}$	1.40365	641.6458	1.40507	645.8746	1.40650	650.1172
1	1.40369	641.7778	1.40512	646.0069	1.40654	650.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.40654	650.2500	1.40796	654.5069	1.40937	658.7778
$\frac{1}{32}$	1.40658	650.3828	1.49800	654.6402	1.40941	658.9115
$\frac{1}{16}$	1.40663	650.5157	1.40805	654.7735	1.40946	659.0452
$\frac{3}{32}$	1.40667	650.6485	1.40809	654.9067	1.40950	659.1789
$\frac{1}{8}$	1.40672	650.7814	1.40813	655.0400	1.40955	659.3126
$\frac{5}{32}$	1.40676	650.9142	1.40818	655.1733	1.40959	659.4464
$\frac{3}{16}$	1.40681	651.0471	1.40822	655.3067	1.40963	659.5801
$\frac{7}{32}$	1.40685	651.1800	1.40827	655.4400	1.40968	659.7139
$\frac{1}{4}$	1.40689	651.3129	1.40831	655.5734	1.40972	659.8477
$\frac{9}{32}$	1.40694	651.4459	1.40835	655.7067	1.40977	659.9815
$\frac{5}{16}$	1.40698	651.5788	1.40840	655.8401	1.40981	660.1153
$\frac{11}{32}$	1.40703	651.7118	1.40844	655.9735	1.40985	660.2491
$\frac{3}{8}$	1.40707	651.8447	1.40849	656.1069	1.40990	660.3829
$\frac{13}{32}$	1.40712	651.9777	1.40853	656.2403	1.40994	660.5168
$\frac{7}{16}$	1.40716	652.1107	1.40858	656.3737	1.40999	660.6506
$\frac{15}{32}$	1.40720	652.2437	1.40862	656.5072	1.41003	660.7845
$\frac{1}{2}$	1.40725	652.3767	1.40866	656.6406	1.41007	660.9184
$\frac{17}{32}$	1.40729	652.5098	1.40871	656.7741	1.41012	661.0523
$\frac{9}{16}$	1.40734	652.6428	1.40875	656.9076	1.41016	661.1862
$\frac{19}{32}$	1.40738	652.7759	1.40880	657.0411	1.41021	661.3202
$\frac{5}{8}$	1.40743	652.9090	1.40884	657.1746	1.41025	661.4541
$\frac{21}{32}$	1.40747	653.0421	1.40888	657.3081	1.41029	661.5881
$\frac{11}{16}$	1.40751	653.1752	1.40893	657.4417	1.41034	661.7220
$\frac{23}{32}$	1.40756	653.3083	1.40897	657.5752	1.41038	661.8560
$\frac{3}{4}$	1.40760	653.4414	1.40902	657.7088	1.41043	661.9900
$\frac{25}{32}$	1.40765	653.5746	1.40906	657.8423	1.41047	662.1240
$\frac{13}{16}$	1.40769	653.7077	1.40911	657.9759	1.41051	662.2581
$\frac{27}{32}$	1.40774	653.8409	1.40915	658.1095	1.41056	662.3921
$\frac{7}{8}$	1.40778	653.9741	1.40919	658.2432	1.41060	662.5262
$\frac{29}{32}$	1.40782	654.1073	1.40924	658.3768	1.41065	662.6602
$\frac{15}{16}$	1.40787	654.2405	1.40928	658.5104	1.41069	662.7943
$\frac{31}{32}$	1.40791	654.3737	1.40933	658.6441	1.41073	662.9284
1	1.40796	654.5069	1.40937	658.7778	1.41078	663.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.41078	663.0625	1.41218	667.3611	1.41358	671.6736
$\frac{1}{32}$	1.41082	663.1966	1.41222	667.4957	1.41362	671.8086
$\frac{1}{16}$	1.41087	663.3308	1.41227	667.6302	1.41367	671.9436
$\frac{3}{32}$	1.41091	663.4649	1.41231	667.7648	1.41371	672.0786
$\frac{1}{8}$	1.41095	663.5991	1.41236	667.8994	1.41375	672.2137
$\frac{5}{32}$	1.41100	663.7332	1.41240	668.0340	1.41380	672.3487
$\frac{3}{16}$	1.41104	663.8674	1.41244	668.1686	1.41384	672.4838
$\frac{7}{32}$	1.41108	664.0016	1.41249	668.3033	1.41388	672.6188
$\frac{1}{4}$	1.41113	664.1359	1.41253	668.4379	1.41393	672.7539
$\frac{9}{32}$	1.41117	664.2701	1.41257	668.5726	1.41397	672.8890
$\frac{5}{16}$	1.41122	664.4043	1.41262	668.7073	1.41402	673.0241
$\frac{11}{32}$	1.41126	664.5386	1.41266	668.8420	1.41406	673.1592
$\frac{3}{8}$	1.41130	664.6729	1.41271	668.9767	1.41410	673.2944
$\frac{13}{32}$	1.41135	664.8071	1.41275	669.1114	1.41415	673.4295
$\frac{7}{16}$	1.41139	664.9414	1.41279	669.2461	1.41419	673.5647
$\frac{15}{32}$	1.41144	665.0757	1.41284	669.3809	1.41423	673.6999
$\frac{1}{2}$	1.41148	665.2101	1.41288	669.5156	1.41428	673.8351
$\frac{17}{32}$	1.41152	665.3444	1.41292	669.6504	1.41432	673.9703
$\frac{9}{16}$	1.41157	665.4788	1.41297	669.7852	1.41436	674.1055
$\frac{19}{32}$	1.41161	665.6131	1.41301	669.9200	1.41441	674.2407
$\frac{5}{8}$	1.41165	665.7475	1.41306	670.0548	1.41445	674.3760
$\frac{21}{32}$	1.41170	665.8819	1.41310	670.1896	1.41449	674.5112
$\frac{11}{16}$	1.41174	666.0163	1.41314	670.3245	1.41454	674.6465
$\frac{23}{32}$	1.41179	666.1507	1.41319	670.4593	1.41458	674.7818
$\frac{3}{4}$	1.41183	666.2852	1.41323	670.5942	1.41463	674.9171
$\frac{25}{32}$	1.41187	666.4196	1.41327	670.7291	1.41467	675.0524
$\frac{13}{16}$	1.41192	666.5541	1.41332	670.8640	1.41471	675.1877
$\frac{27}{32}$	1.41196	666.6885	1.41336	670.9989	1.41476	675.3231
$\frac{7}{8}$	1.41201	666.8230	1.41340	671.1338	1.41480	675.4584
$\frac{29}{32}$	1.41205	666.9575	1.41345	671.2687	1.41484	675.5938
$\frac{15}{16}$	1.41209	667.0920	1.41349	671.4037	1.41489	675.7292
$\frac{31}{32}$	1.41214	667.2266	1.41354	671.5386	1.41493	675.8646
1	1.41218	667.3611	1.41358	671.6736	1.41497	676.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.41497	676.0000	1.41636	680.3403	1.41775	684.6944
$\frac{1}{32}$	1.41502	676.1354	1.41641	680.4761	1.41779	684.8307
$\frac{1}{16}$	1.41506	676.2709	1.41645	680.6120	1.41783	684.9670
$\frac{3}{32}$	1.41510	676.4063	1.41649	680.7479	1.41788	685.1034
$\frac{1}{8}$	1.41515	676.5418	1.41654	680.8838	1.41792	685.2397
$\frac{5}{32}$	1.41519	676.6773	1.41658	681.0197	1.41796	685.3760
$\frac{3}{16}$	1.41523	676.8127	1.41662	681.1556	1.41801	685.5124
$\frac{7}{32}$	1.41528	676.9482	1.41667	681.2916	1.41805	685.6488
$\frac{1}{4}$	1.41532	677.0838	1.41671	681.4275	1.41809	685.7852
$\frac{9}{32}$	1.41536	677.2193	1.41675	681.5635	1.41814	685.9216
$\frac{5}{16}$	1.41541	677.3548	1.41680	681.6995	1.41818	686.0580
$\frac{11}{32}$	1.41545	677.4904	1.41684	681.8355	1.41822	686.1944
$\frac{3}{8}$	1.41550	677.6260	1.41688	681.9715	1.41827	686.3308
$\frac{13}{32}$	1.41554	677.7616	1.41693	682.1075	1.41831	686.4673
$\frac{7}{16}$	1.41558	677.8972	1.41697	682.2435	1.41835	686.6038
$\frac{15}{32}$	1.41563	678.0328	1.41701	682.3796	1.41840	686.7402
$\frac{1}{2}$	1.41567	678.1684	1.41706	682.5156	1.41844	686.8767
$\frac{17}{32}$	1.41571	678.3040	1.41710	682.6517	1.41848	687.0132
$\frac{9}{16}$	1.41576	678.4397	1.41714	682.7878	1.41853	687.1498
$\frac{19}{32}$	1.41580	678.5754	1.41719	682.9239	1.41857	687.2863
$\frac{5}{8}$	1.41584	678.7110	1.41723	683.0600	1.41861	687.4229
$\frac{21}{32}$	1.41589	678.8467	1.41727	683.1961	1.41866	687.5594
$\frac{11}{16}$	1.41593	678.9824	1.41732	683.3323	1.41870	687.6960
$\frac{23}{32}$	1.41597	679.1182	1.41736	683.4684	1.41874	687.8326
$\frac{3}{4}$	1.41602	679.2539	1.41740	683.6046	1.41878	687.9692
$\frac{25}{32}$	1.41606	679.3897	1.41745	683.7408	1.41883	688.1058
$\frac{13}{16}$	1.41610	679.5254	1.41749	683.8770	1.41887	688.2424
$\frac{27}{32}$	1.41615	679.6612	1.41753	684.0132	1.41891	688.3791
$\frac{7}{8}$	1.41619	679.7970	1.41758	684.1494	1.41896	688.5157
$\frac{29}{32}$	1.41623	679.9328	1.41762	684.2857	1.41900	688.6524
$\frac{15}{16}$	1.41628	680.0686	1.41766	684.4219	1.41904	688.7891
$\frac{31}{32}$	1.41632	680.2044	1.41771	684.5582	1.41909	688.9258
1	1.41636	680.3403	1.41775	684.6944	1.41913	689.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.41913	689.0625	1.42051	693.4444	1.42188	697.8403
$\frac{1}{32}$	1.41917	689.1992	1.42055	693.5816	1.42192	697.9779
$\frac{1}{16}$	1.41922	689.3360	1.42059	693.7188	1.42196	698.1155
$\frac{3}{32}$	1.41926	689.4727	1.42063	693.8560	1.42201	698.2531
$\frac{1}{8}$	1.41930	689.6095	1.42068	693.9932	1.42205	698.3907
$\frac{5}{32}$	1.41934	689.7463	1.42072	694.1304	1.42209	698.5284
$\frac{3}{16}$	1.41939	689.8831	1.42076	694.2676	1.42213	698.6660
$\frac{7}{32}$	1.41943	690.0199	1.42081	694.4048	1.42218	698.8037
$\frac{1}{4}$	1.41947	690.1567	1.42085	694.5421	1.42222	698.9414
$\frac{9}{32}$	1.41952	690.2935	1.42089	694.6794	1.42226	699.0791
$\frac{5}{16}$	1.41956	690.4304	1.42094	694.8167	1.42231	699.2168
$\frac{11}{32}$	1.41960	690.5672	1.42098	694.9539	1.42235	699.3546
$\frac{3}{8}$	1.41965	690.7041	1.42102	695.0913	1.42239	699.4923
$\frac{13}{32}$	1.41969	690.8410	1.42106	695.2286	1.42243	699.6301
$\frac{7}{16}$	1.41973	690.9779	1.42111	695.3659	1.42248	699.7678
$\frac{15}{32}$	1.41978	691.1148	1.42115	695.5033	1.42252	699.9056
$\frac{1}{2}$	1.41982	691.2517	1.42119	695.6406	1.42256	700.0434
$\frac{17}{32}$	1.41986	691.3887	1.42124	695.7780	1.42261	700.1812
$\frac{9}{16}$	1.41990	691.5256	1.42128	695.9154	1.42265	700.3190
$\frac{19}{32}$	1.41995	691.6626	1.42132	696.0528	1.42269	700.4569
$\frac{5}{8}$	1.41999	691.7996	1.42136	696.1902	1.42273	700.5947
$\frac{21}{32}$	1.42003	691.9366	1.42141	696.3276	1.42278	700.7323
$\frac{11}{16}$	1.42008	692.0736	1.42145	696.4651	1.42282	700.8705
$\frac{23}{32}$	1.42012	692.2106	1.42149	696.6025	1.42286	701.0084
$\frac{3}{4}$	1.42016	692.3477	1.42154	696.7400	1.42290	701.1463
$\frac{25}{32}$	1.42021	692.4847	1.42158	696.8775	1.42295	701.2842
$\frac{13}{16}$	1.42025	692.6218	1.42162	697.0150	1.42299	701.4221
$\frac{27}{32}$	1.42029	692.7589	1.42166	697.1525	1.42303	701.5601
$\frac{7}{8}$	1.42033	692.8959	1.42171	697.2900	1.42308	701.6980
$\frac{29}{32}$	1.42038	693.0330	1.42175	697.4276	1.42312	701.8360
$\frac{15}{16}$	1.42042	693.1702	1.42179	697.5651	1.42316	701.9740
$\frac{31}{32}$	1.42046	693.3073	1.42184	697.7027	1.42320	702.1120
1	1.42051	693.4444	1.42188	697.8403	1.42325	702.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.42325	702.2500	1.42461	706.6796	1.42597	711.1111
$\frac{1}{32}$	1.42329	702.3880	1.42465	706.8121	1.42601	711.2500
$\frac{1}{16}$	1.42333	702.5261	1.42469	706.9505	1.42605	711.3889
$\frac{3}{32}$	1.42337	702.6641	1.42474	707.0890	1.42610	711.5278
$\frac{1}{8}$	1.42342	702.8022	1.42478	707.2275	1.42614	711.6668
$\frac{5}{32}$	1.42346	702.9403	1.42482	707.3661	1.42618	711.8057
$\frac{3}{16}$	1.42350	703.0784	1.42486	707.5046	1.42622	711.9447
$\frac{7}{32}$	1.42354	703.2165	1.42491	707.6431	1.42627	712.0837
$\frac{1}{4}$	1.42359	703.3546	1.42495	707.7817	1.42631	712.2227
$\frac{9}{32}$	1.42363	703.4927	1.42499	707.9203	1.42635	712.3617
$\frac{5}{16}$	1.42367	703.6309	1.42503	708.0588	1.42639	712.5007
$\frac{11}{32}$	1.42372	703.7690	1.42508	708.1974	1.42644	712.6397
$\frac{3}{8}$	1.42376	703.9072	1.42512	708.3360	1.42648	712.7788
$\frac{13}{32}$	1.42380	704.0454	1.42516	708.4747	1.42652	712.9178
$\frac{7}{16}$	1.42384	704.1836	1.42520	708.6133	1.42656	713.0569
$\frac{15}{32}$	1.42389	704.3218	1.42525	708.7520	1.42660	713.1960
$\frac{1}{2}$	1.42393	704.4601	1.42529	708.8906	1.42665	713.3351
$\frac{17}{32}$	1.42397	704.5983	1.42533	709.0293	1.42669	713.4742
$\frac{9}{16}$	1.42401	704.7366	1.42537	709.1680	1.42673	713.6133
$\frac{19}{32}$	1.42406	704.8748	1.42542	709.3067	1.42677	713.7524
$\frac{5}{8}$	1.42410	705.0131	1.42546	709.4454	1.42682	713.8916
$\frac{21}{32}$	1.42414	705.1514	1.42550	709.5842	1.42686	714.0308
$\frac{11}{16}$	1.42418	705.2897	1.42554	709.7229	1.42690	714.1699
$\frac{23}{32}$	1.42423	705.4281	1.42559	709.8617	1.42694	714.3091
$\frac{3}{4}$	1.42427	705.5664	1.42563	710.0004	1.42699	714.4484
$\frac{25}{32}$	1.42431	705.7048	1.42567	710.1392	1.42703	714.5876
$\frac{13}{16}$	1.42435	705.8431	1.42571	710.2780	1.42707	714.7268
$\frac{27}{32}$	1.42440	705.9815	1.42576	710.4168	1.42711	714.8661
$\frac{7}{8}$	1.42444	706.1199	1.42580	710.5557	1.42715	715.0053
$\frac{29}{32}$	1.42448	706.2583	1.42584	710.6945	1.42720	715.1446
$\frac{15}{16}$	1.42452	706.3967	1.42588	710.8334	1.42724	715.2839
$\frac{31}{32}$	1.42457	706.5352	1.42593	710.9722	1.42728	715.4232
1	1.42461	706.6736	1.42597	711.1111	1.42732	715.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.42732	715.5625	1.42867	720.0278	1.43002	724.5069
$\frac{1}{32}$	1.42737	715.7018	1.42872	720.1675	1.43006	724.6471
$\frac{1}{16}$	1.42741	715.8412	1.42876	720.3073	1.43011	724.7874
$\frac{3}{32}$	1.42745	715.9805	1.42880	720.4471	1.43015	724.9276
$\frac{1}{8}$	1.42749	716.1199	1.42884	720.5869	1.43019	725.0678
$\frac{5}{32}$	1.42754	716.2593	1.42889	720.7267	1.43023	725.2081
$\frac{3}{16}$	1.42758	716.3987	1.42893	720.8666	1.43027	725.3483
$\frac{7}{32}$	1.42762	716.5381	1.42897	721.0064	1.43032	725.4886
$\frac{1}{4}$	1.42766	716.6775	1.42901	721.1463	1.43036	725.6289
$\frac{9}{32}$	1.42770	716.8170	1.42905	721.2861	1.43040	725.7692
$\frac{5}{16}$	1.42775	716.9564	1.42910	721.4260	1.43044	725.9095
$\frac{11}{32}$	1.42779	717.0959	1.42914	721.5659	1.43048	726.0499
$\frac{3}{8}$	1.42783	717.2354	1.42918	721.7058	1.43053	726.1902
$\frac{13}{32}$	1.42787	717.3748	1.42922	721.8458	1.43057	726.3306
$\frac{7}{16}$	1.42792	717.5144	1.42926	721.9857	1.43061	726.4709
$\frac{15}{32}$	1.42796	717.6539	1.42931	722.1257	1.43065	726.6113
$\frac{1}{2}$	1.42800	717.7934	1.42935	722.2656	1.43069	726.7517
$\frac{17}{32}$	1.42804	717.9329	1.42939	722.4056	1.43074	726.8922
$\frac{9}{16}$	1.42808	718.0725	1.42943	722.5456	1.43078	727.0326
$\frac{19}{32}$	1.42813	718.2121	1.42947	722.6856	1.43082	727.1730
$\frac{5}{8}$	1.42817	718.3517	1.42952	722.8256	1.43086	727.3135
$\frac{21}{32}$	1.42821	718.4913	1.42956	722.9657	1.43090	727.4539
$\frac{11}{16}$	1.42825	718.6309	1.42960	723.1057	1.43094	727.5944
$\frac{23}{32}$	1.42830	718.7705	1.42964	723.2458	1.43099	727.7349
$\frac{3}{4}$	1.42834	718.9102	1.42969	723.3859	1.43103	727.8754
$\frac{25}{32}$	1.42838	719.0498	1.42973	723.5259	1.43107	728.0160
$\frac{13}{16}$	1.42842	719.1895	1.42977	723.6660	1.43111	728.1565
$\frac{27}{32}$	1.42846	719.3292	1.42981	723.8062	1.43115	728.2970
$\frac{7}{8}$	1.42851	719.4689	1.42985	723.9463	1.43120	728.4376
$\frac{29}{32}$	1.42855	719.6086	1.42990	724.0864	1.43124	728.5782
$\frac{15}{16}$	1.42859	719.7483	1.42994	724.2266	1.43128	728.7188
$\frac{31}{32}$	1.42863	719.8880	1.42998	724.3668	1.43132	728.8594
1	1.42867	720.0278	1.43002	724.5069	1.43136	729.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.43136	729.0000	1.43270	733.5069	1.43404	738.0278
$\frac{1}{32}$	1.43141	729.1406	1.43274	733.6480	1.43408	738.1693
$\frac{1}{16}$	1.43145	729.2813	1.43279	733.7891	1.43412	738.3108
$\frac{3}{32}$	1.43149	729.4219	1.43283	733.9302	1.43416	738.4523
$\frac{1}{8}$	1.43153	729.5626	1.43287	734.0713	1.43420	738.5939
$\frac{5}{32}$	1.43157	729.7033	1.43291	734.2124	1.43424	738.7354
$\frac{3}{16}$	1.43162	729.8440	1.43295	734.3535	1.43429	738.8770
$\frac{7}{32}$	1.43166	729.9847	1.43299	734.4947	1.43433	739.0186
$\frac{1}{4}$	1.43170	730.1254	1.43304	734.6359	1.43437	739.1602
$\frac{9}{32}$	1.43174	730.2662	1.43308	734.7770	1.43441	739.3018
$\frac{5}{16}$	1.43178	730.4069	1.43312	734.9182	1.43445	739.4434
$\frac{11}{32}$	1.43182	730.5477	1.43316	735.0594	1.43449	739.5850
$\frac{3}{8}$	1.43187	730.6885	1.43320	735.2006	1.43454	739.7267
$\frac{13}{32}$	1.43191	730.8293	1.43324	735.3419	1.43458	739.8683
$\frac{7}{16}$	1.43195	730.9701	1.43329	735.4831	1.43462	740.0100
$\frac{15}{32}$	1.43199	731.1109	1.43333	735.6244	1.43466	740.1517
$\frac{1}{2}$	1.43203	731.2517	1.43337	735.7656	1.43470	740.2934
$\frac{17}{32}$	1.43208	731.3926	1.43341	735.9069	1.43474	740.4351
$\frac{9}{16}$	1.43212	731.5334	1.43345	736.0482	1.43479	740.5769
$\frac{19}{32}$	1.43216	731.6743	1.43349	736.1895	1.43483	740.7186
$\frac{5}{8}$	1.43220	731.8152	1.43354	736.3308	1.43487	740.8604
$\frac{21}{32}$	1.43224	731.9561	1.43358	736.4722	1.43491	741.0021
$\frac{11}{16}$	1.43228	732.0970	1.43362	736.6135	1.43495	741.1439
$\frac{23}{32}$	1.43233	732.2380	1.43366	736.7549	1.43499	741.2857
$\frac{3}{4}$	1.43237	732.3789	1.43370	736.8963	1.43503	741.4275
$\frac{25}{32}$	1.43241	732.5199	1.43374	737.0377	1.43508	741.5693
$\frac{13}{16}$	1.43245	732.6608	1.43379	737.1791	1.43512	741.7112
$\frac{27}{32}$	1.43249	732.8018	1.43383	737.3205	1.43516	741.8530
$\frac{7}{8}$	1.43254	732.9428	1.43387	737.4619	1.43520	741.9949
$\frac{29}{32}$	1.43258	733.0838	1.43391	737.6034	1.43524	742.1368
$\frac{15}{16}$	1.43262	733.2249	1.43395	737.7448	1.43528	742.2787
$\frac{31}{32}$	1.43266	733.3659	1.43399	737.8863	1.43533	742.4206
1	1.43270	733.5069	1.43404	738.0278	1.43537	742.5625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.43537	742.5625	1.43669	747.1111	1.43801	751.6736
$\frac{1}{32}$	1.43541	742.7044	1.43673	747.2535	1.43806	751.8164
$\frac{1}{16}$	1.43545	742.8464	1.43678	747.3959	1.43810	751.9592
$\frac{3}{32}$	1.43549	742.9883	1.43682	747.5383	1.43814	752.1021
$\frac{1}{8}$	1.43553	743.1303	1.43686	747.6807	1.43818	752.2449
$\frac{5}{32}$	1.43557	743.2723	1.43690	747.8231	1.43822	752.3878
$\frac{3}{16}$	1.43562	743.4143	1.43694	747.9655	1.43826	752.5306
$\frac{7}{32}$	1.43566	743.5563	1.43698	748.1080	1.43830	752.6735
$\frac{1}{4}$	1.43570	743.6984	1.43702	748.2504	1.43834	752.8164
$\frac{9}{32}$	1.43574	743.8404	1.43706	748.3929	1.43839	752.9593
$\frac{5}{16}$	1.43578	743.9824	1.43711	748.5354	1.43843	753.1022
$\frac{11}{32}$	1.43582	744.1245	1.43715	748.6779	1.43847	753.2452
$\frac{3}{8}$	1.43586	744.2666	1.43719	748.8204	1.43851	753.3881
$\frac{13}{32}$	1.43591	744.4087	1.43723	748.9630	1.43855	753.5311
$\frac{7}{16}$	1.43595	744.5508	1.43727	749.1055	1.43859	753.6741
$\frac{15}{32}$	1.43599	744.6929	1.43731	749.2481	1.43863	753.8171
$\frac{1}{2}$	1.43603	744.8351	1.43735	749.3906	1.43867	753.9601
$\frac{17}{32}$	1.43607	744.9772	1.43740	749.5332	1.43872	754.1031
$\frac{9}{16}$	1.43611	745.1194	1.43744	749.6758	1.43876	754.2461
$\frac{19}{32}$	1.43615	745.2616	1.43748	749.8184	1.43880	754.3892
$\frac{5}{8}$	1.43620	745.4038	1.43752	749.9610	1.43884	754.5322
$\frac{21}{32}$	1.43624	745.5460	1.43756	750.1037	1.43888	754.6753
$\frac{11}{16}$	1.43628	745.6882	1.43760	750.2463	1.43892	754.8184
$\frac{23}{32}$	1.43632	745.8304	1.43764	750.3890	1.43896	754.9615
$\frac{3}{4}$	1.43636	745.9727	1.43768	750.5317	1.43900	755.1046
$\frac{25}{32}$	1.43640	746.1149	1.43773	750.6744	1.43904	755.2477
$\frac{13}{16}$	1.43644	746.2572	1.43777	750.8171	1.43909	755.3909
$\frac{27}{32}$	1.43649	746.3995	1.43781	750.9598	1.43913	755.5340
$\frac{7}{8}$	1.43653	746.5418	1.43785	751.1025	1.43917	755.6772
$\frac{29}{32}$	1.43657	746.6841	1.43789	751.2453	1.43921	755.8204
$\frac{15}{16}$	1.43661	746.8264	1.43793	751.3880	1.43925	755.9636
$\frac{31}{32}$	1.43665	746.9688	1.43797	751.5308	1.43929	756.1068
1	1.43669	747.1111	1.43801	751.6736	1.43933	756.2500

# 25'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.40654	650.2500	1.40796	654.5069	1.40837	658.7778
$\frac{1}{32}$	1.40658	650.3828	1.40800	654.6402	1.40941	658.9115
$\frac{1}{16}$	1.40663	650.5157	1.40805	654.7735	1.40946	659.0452
$\frac{3}{32}$	1.40667	650.6485	1.40809	654.9067	1.40950	659.1789
$\frac{1}{8}$	1.40672	650.7814	1.40813	655.0400	1.40955	659.3126
$\frac{5}{32}$	1.40676	650.9142	1.40818	655.1733	1.40959	659.4464
$\frac{3}{16}$	1.40681	651.0471	1.40822	655.3067	1.40963	659.5801
$\frac{7}{32}$	1.40685	651.1800	1.40827	655.4400	1.40968	659.7139
$\frac{1}{4}$	1.40689	651.3129	1.40831	655.5734	1.40972	659.8477
$\frac{9}{32}$	1.40694	651.4459	1.40835	655.7067	1.40977	659.9815
$\frac{5}{16}$	1.40698	651.5788	1.40840	655.8401	1.40981	660.1153
$\frac{11}{32}$	1.40703	651.7118	1.40844	655.9735	1.40985	660.2491
$\frac{3}{8}$	1.40707	651.8447	1.40849	656.1069	1.40990	660.3829
$\frac{13}{32}$	1.40712	651.9777	1.40853	656.2403	1.40994	660.5168
$\frac{7}{16}$	1.40716	652.1107	1.40858	656.3737	1.40999	660.6506
$\frac{15}{32}$	1.40720	652.2437	1.40862	656.5072	1.41003	660.7845
$\frac{1}{2}$	1.40725	652.3767	1.40866	656.6406	1.41007	660.9184
$\frac{17}{32}$	1.40729	652.5098	1.40871	656.7741	1.41012	661.0523
$\frac{9}{16}$	1.40734	652.6428	1.40875	656.9076	1.41016	661.1862
$\frac{19}{32}$	1.40738	652.7759	1.40880	657.0411	1.41021	661.3202
$\frac{5}{8}$	1.40743	652.9090	1.40884	657.1746	1.41025	661.4541
$\frac{21}{32}$	1.40747	653.0421	1.40888	657.3081	1.41029	661.5881
$\frac{11}{16}$	1.40751	653.1752	1.40893	657.4417	1.41034	661.7220
$\frac{23}{32}$	1.40756	653.3083	1.40897	657.5752	1.41038	661.8560
$\frac{3}{4}$	1.40760	653.4414	1.40902	657.7088	1.41043	661.9900
$\frac{25}{32}$	1.40765	653.5746	1.40906	657.8423	1.41047	662.1240
$\frac{13}{16}$	1.40769	653.7077	1.40911	657.9759	1.41051	662.2581
$\frac{27}{32}$	1.40774	653.8409	1.40915	658.1095	1.41056	662.3921
$\frac{7}{8}$	1.40778	653.9741	1.40919	658.2432	1.41060	662.5262
$\frac{29}{32}$	1.40782	654.1073	1.40924	658.3768	1.41065	662.6602
$\frac{15}{16}$	1.40787	654.2405	1.40928	658.5104	1.41069	662.7943
$\frac{31}{32}$	1.40791	654.3737	1.40933	658.6441	1.41073	662.9284
1	1.40796	654.5069	1.40937	658.7778	1.41078	663.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.41078	663.0625	1.41218	667.3611	1.41358	671.6736
$\frac{1}{32}$	1.41082	663.1866	1.41222	667.4957	1.41362	671.8086
$\frac{1}{16}$	1.41087	663.3308	1.41227	667.6302	1.41367	671.9436
$\frac{3}{32}$	1.41091	663.4649	1.41231	667.7648	1.41371	672.0786
$\frac{1}{8}$	1.41095	663.5991	1.41236	667.8994	1.41375	672.2137
$\frac{5}{32}$	1.41100	663.7332	1.41240	668.0340	1.41380	672.3487
$\frac{3}{16}$	1.41104	663.8674	1.41244	668.1686	1.41384	672.4838
$\frac{7}{32}$	1.41108	664.0016	1.41249	668.3033	1.41388	672.6188
$\frac{1}{4}$	1.41113	664.1359	1.41253	668.4379	1.41393	672.7539
$\frac{9}{32}$	1.41117	664.2701	1.41257	668.5726	1.41397	672.8890
$\frac{5}{16}$	1.41122	664.4043	1.41262	668.7073	1.41402	673.0241
$\frac{11}{32}$	1.41126	664.5386	1.41266	668.8420	1.41406	673.1592
$\frac{3}{8}$	1.41130	664.6729	1.41271	668.9767	1.41410	673.2944
$\frac{13}{32}$	1.41135	664.8071	1.41275	669.1114	1.41415	673.4295
$\frac{7}{16}$	1.41139	664.9414	1.41279	669.2461	1.41419	673.5647
$\frac{15}{32}$	1.41144	665.0757	1.41284	669.3809	1.41423	673.6999
$\frac{1}{2}$	1.41148	665.2101	1.41288	669.5156	1.41428	673.8351
$\frac{17}{32}$	1.41152	665.3444	1.41292	669.6504	1.41432	673.9703
$\frac{9}{16}$	1.41157	665.4788	1.41297	669.7852	1.41436	674.1055
$\frac{19}{32}$	1.41161	665.6131	1.41301	669.9200	1.41441	674.2407
$\frac{5}{8}$	1.41165	665.7475	1.41306	670.0548	1.41445	674.3760
$\frac{21}{32}$	1.41170	665.8819	1.41310	670.1896	1.41449	674.5112
$\frac{11}{16}$	1.41174	666.0163	1.41314	670.3245	1.41454	674.6465
$\frac{23}{32}$	1.41179	666.1507	1.41319	670.4593	1.41458	674.7818
$\frac{3}{4}$	1.41183	666.2852	1.41323	670.5942	1.41463	674.9171
$\frac{25}{32}$	1.41187	666.4196	1.41327	670.7291	1.41467	675.0524
$\frac{13}{16}$	1.41192	666.5541	1.41332	670.8640	1.41471	675.1877
$\frac{27}{32}$	1.41196	666.6885	1.41336	670.9989	1.41476	675.3231
$\frac{7}{8}$	1.41201	666.8230	1.41340	671.1338	1.41480	675.4584
$\frac{29}{32}$	1.41205	666.9575	1.41345	671.2687	1.41484	675.5938
$\frac{15}{16}$	1.41209	667.0920	1.41349	671.4037	1.41489	675.7292
$\frac{31}{32}$	1.41214	667.2266	1.41354	671.5386	1.41493	675.8646
1	1.41218	667.3611	1.41358	671.6736	1.41497	676.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.41497	676.0000	1.41636	680.3403	1.41775	684.6944
$\frac{1}{32}$	1.41502	676.1354	1.41641	680.4761	1.41779	684.8307
$\frac{1}{16}$	1.41506	676.2709	1.41645	680.6120	1.41783	684.9670
$\frac{3}{32}$	1.41510	676.4063	1.41649	680.7479	1.41788	685.1034
$\frac{1}{8}$	1.41515	676.5418	1.41654	680.8838	1.41792	685.2397
$\frac{5}{32}$	1.41519	676.6773	1.41658	681.0197	1.41796	685.3760
$\frac{3}{16}$	1.41523	676.8127	1.41662	681.1556	1.41801	685.5124
$\frac{7}{32}$	1.41528	676.9482	1.41667	681.2916	1.41805	685.6488
$\frac{1}{4}$	1.41532	677.0838	1.41671	681.4275	1.41809	685.7852
$\frac{9}{32}$	1.41536	677.2193	1.41675	681.5635	1.41814	685.9216
$\frac{5}{16}$	1.41541	677.3548	1.41680	681.6995	1.41818	686.0580
$\frac{11}{32}$	1.41545	677.4904	1.41684	681.8355	1.41822	686.1944
$\frac{3}{8}$	1.41550	677.6260	1.41688	681.9715	1.41827	686.3308
$\frac{13}{32}$	1.41554	677.7616	1.41693	682.1075	1.41831	686.4673
$\frac{7}{16}$	1.41558	677.8972	1.41697	682.2435	1.41835	686.6038
$\frac{15}{32}$	1.41563	678.0328	1.41701	682.3796	1.41840	686.7402
$\frac{1}{2}$	1.41567	678.1684	1.41706	682.5156	1.41844	686.8767
$\frac{17}{32}$	1.41571	678.3040	1.41710	682.6517	1.41848	687.0132
$\frac{9}{16}$	1.41576	678.4397	1.41714	682.7878	1.41853	687.1498
$\frac{19}{32}$	1.41580	678.5754	1.41719	682.9239	1.41857	687.2863
$\frac{5}{8}$	1.41584	678.7110	1.41723	683.0600	1.41861	687.4229
$\frac{21}{32}$	1.41589	678.8467	1.41727	683.1961	1.41866	687.5594
$\frac{11}{16}$	1.41593	678.9824	1.41732	683.3323	1.41870	687.6960
$\frac{23}{32}$	1.41597	679.1182	1.41736	683.4684	1.41874	687.8326
$\frac{3}{4}$	1.41602	679.2539	1.41740	683.6046	1.41878	687.9692
$\frac{25}{32}$	1.41606	679.3897	1.41745	683.7408	1.41883	688.1058
$\frac{13}{16}$	1.41610	679.5254	1.41749	683.8770	1.41887	688.2424
$\frac{27}{32}$	1.41615	679.6612	1.41753	684.0132	1.41891	688.3791
$\frac{7}{8}$	1.41619	679.7970	1.41758	684.1494	1.41896	688.5157
$\frac{29}{32}$	1.41623	679.9328	1.41762	684.2857	1.41900	688.6524
$\frac{15}{16}$	1.41628	680.0686	1.41766	684.4219	1.41904	688.7891
$\frac{31}{32}$	1.41632	680.2044	1.41771	684.5582	1.41909	688.9258
1	1.41636	680.3403	1.41775	684.6944	1.41913	689.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.41913	689.0625	1.42051	693.4444	1.42188	697.8403
$\frac{1}{32}$	1.41917	689.1992	1.42055	693.5816	1.42192	697.9779
$\frac{1}{16}$	1.41922	689.3360	1.42059	693.7188	1.42196	698.1155
$\frac{3}{32}$	1.41926	689.4727	1.42063	693.8560	1.42201	698.2531
$\frac{1}{8}$	1.41930	689.6095	1.42068	693.9932	1.42205	698.3907
$\frac{5}{32}$	1.41934	689.7463	1.42072	694.1304	1.42209	698.5284
$\frac{3}{16}$	1.41939	689.8831	1.42076	694.2676	1.42213	698.6660
$\frac{7}{32}$	1.41943	690.0199	1.42081	694.4048	1.42218	698.8037
$\frac{1}{4}$	1.41947	690.1567	1.42085	694.5421	1.42222	698.9414
$\frac{9}{32}$	1.41952	690.2935	1.42089	694.6794	1.42226	699.0791
$\frac{5}{16}$	1.41956	690.4304	1.42094	694.8167	1.42231	699.2168
$\frac{11}{32}$	1.41960	690.5672	1.42098	694.9539	1.42235	699.3546
$\frac{3}{8}$	1.41965	690.7041	1.42102	695.0913	1.42239	699.4923
$\frac{13}{32}$	1.41969	690.8410	1.42106	695.2286	1.42243	699.6301
$\frac{7}{16}$	1.41973	690.9779	1.42111	695.3659	1.42248	699.7678
$\frac{15}{32}$	1.41978	691.1148	1.42115	695.5033	1.42252	699.9056
$\frac{1}{2}$	1.41982	691.2517	1.42119	695.6406	1.42256	700.0434
$\frac{17}{32}$	1.41986	691.3887	1.42124	695.7780	1.42261	700.1812
$\frac{9}{16}$	1.41990	691.5256	1.42128	695.9154	1.42265	700.3190
$\frac{19}{32}$	1.41995	691.6626	1.42132	696.0528	1.42269	700.4569
$\frac{5}{8}$	1.41999	691.7996	1.42136	696.1902	1.42273	700.5947
$\frac{21}{32}$	1.42003	691.9366	1.42141	696.3276	1.42278	700.7326
$\frac{11}{16}$	1.42008	692.0736	1.42145	696.4651	1.42282	700.8705
$\frac{23}{32}$	1.42012	692.2106	1.42149	696.6025	1.42286	701.0084
$\frac{3}{4}$	1.42016	692.3477	1.42154	696.7400	1.42290	701.1463
$\frac{25}{32}$	1.42021	692.4847	1.42158	696.8775	1.42295	701.2842
$\frac{13}{16}$	1.42025	692.6218	1.42162	697.0150	1.42299	701.4221
$\frac{27}{32}$	1.42029	692.7589	1.42166	697.1525	1.42303	701.5601
$\frac{7}{8}$	1.42033	692.8960	1.42171	697.2900	1.42308	701.6980
$\frac{29}{32}$	1.42038	693.0330	1.42175	697.4276	1.42312	701.8360
$\frac{15}{16}$	1.42042	693.1702	1.42179	697.5651	1.42316	701.9740
$\frac{31}{32}$	1.42046	693.3073	1.42184	697.7027	1.42320	702.1120
1	1.42051	693.4444	1.42188	697.8403	1.42325	702.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.42325	702.2500	1.42461	706.6736	1.42597	711.1111
$\frac{1}{32}$	1.42329	702.3880	1.42465	706.8121	1.42601	711.2500
$\frac{1}{16}$	1.42333	702.5261	1.42469	706.9505	1.42605	711.3889
$\frac{3}{32}$	1.42337	702.6641	1.42474	707.0890	1.42610	711.5278
$\frac{1}{8}$	1.42342	702.8022	1.42478	707.2275	1.42614	711.6668
$\frac{5}{32}$	1.42346	702.9403	1.42482	707.3661	1.42618	711.8057
$\frac{3}{16}$	1.42350	703.0784	1.42486	707.5046	1.42622	711.9447
$\frac{7}{32}$	1.42354	703.2165	1.42491	707.6431	1.42627	712.0837
$\frac{1}{4}$	1.42359	703.3546	1.42495	707.7817	1.42631	712.2227
$\frac{9}{32}$	1.42363	703.4927	1.42499	707.9203	1.42635	712.3617
$\frac{5}{16}$	1.42367	703.6309	1.42503	708.0588	1.42639	712.5007
$\frac{11}{32}$	1.42372	703.7690	1.42508	708.1974	1.42644	712.6397
$\frac{3}{8}$	1.42376	703.9072	1.42512	708.3360	1.42648	712.7788
$\frac{13}{32}$	1.42380	704.0454	1.42516	708.4747	1.42652	712.9178
$\frac{7}{16}$	1.42384	704.1836	1.42520	708.6133	1.42656	713.0569
$\frac{15}{32}$	1.42389	704.3218	1.42525	708.7520	1.42660	713.1960
$\frac{1}{2}$	1.42393	704.4601	1.42529	708.8906	1.42665	713.3351
$\frac{17}{32}$	1.42397	704.5983	1.42533	709.0293	1.42669	713.4742
$\frac{9}{16}$	1.42401	704.7366	1.42537	709.1680	1.42673	713.6133
$\frac{19}{32}$	1.42406	704.8748	1.42542	709.3067	1.42677	713.7524
$\frac{5}{8}$	1.42410	705.0131	1.42546	709.4454	1.42682	713.8916
$\frac{21}{32}$	1.42414	705.1514	1.42550	709.5842	1.42686	714.0308
$\frac{11}{16}$	1.42418	705.2897	1.42554	709.7229	1.42690	714.1699
$\frac{23}{32}$	1.42423	705.4281	1.42559	709.8617	1.42694	714.3091
$\frac{3}{4}$	1.42427	705.5664	1.42563	710.0004	1.42699	714.4484
$\frac{25}{32}$	1.42431	705.7048	1.42567	710.1392	1.42703	714.5876
$\frac{13}{16}$	1.42435	705.8431	1.42571	710.2780	1.42707	714.7268
$\frac{27}{32}$	1.42440	705.9815	1.42576	710.4168	1.42711	714.8661
$\frac{7}{8}$	1.42444	706.1199	1.42580	710.5557	1.42715	715.0053
$\frac{29}{32}$	1.42448	706.2583	1.42584	710.6945	1.42720	715.1446
$\frac{15}{16}$	1.42452	706.3967	1.42588	710.8334	1.42724	715.2839
$\frac{31}{32}$	1.42457	706.5352	1.42593	710.9722	1.42728	715.4232
1	1.42461	706.6736	1.42597	711.1111	1.42732	715.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.42732	715.5625	1.42867	720.0278	1.43002	724.5069
$\frac{1}{32}$	1.42737	715.7018	1.42872	720.1675	1.43006	724.6471
$\frac{1}{16}$	1.42741	715.8412	1.42876	720.3073	1.43011	724.7874
$\frac{3}{32}$	1.42745	715.9805	1.42880	720.4471	1.43015	724.9276
$\frac{1}{8}$	1.42749	716.1199	1.42884	720.5869	1.43019	725.0678
$\frac{5}{32}$	1.42754	716.2593	1.42889	720.7267	1.43023	725.2081
$\frac{3}{16}$	1.42758	716.3987	1.42893	720.8666	1.43027	725.3483
$\frac{7}{32}$	1.42762	716.5381	1.42897	721.0064	1.43032	725.4886
$\frac{1}{4}$	1.42766	716.6775	1.42901	721.1463	1.43036	725.6289
$\frac{9}{32}$	1.42770	716.8170	1.42905	721.2861	1.43040	725.7692
$\frac{5}{16}$	1.42775	716.9564	1.42910	721.4260	1.43044	725.9095
$\frac{11}{32}$	1.42779	717.0959	1.42914	721.5659	1.43048	726.0499
$\frac{3}{8}$	1.42783	717.2354	1.42918	721.7058	1.43053	726.1902
$\frac{13}{32}$	1.42787	717.3748	1.42922	721.8458	1.43057	726.3306
$\frac{7}{16}$	1.42792	717.5144	1.42926	721.9857	1.43061	726.4709
$\frac{15}{32}$	1.42796	717.6539	1.42931	722.1257	1.43065	726.6113
$\frac{1}{2}$	1.42800	717.7934	1.42935	722.2656	1.43069	726.7517
$\frac{17}{32}$	1.42804	717.9329	1.42939	722.4056	1.43074	726.8922
$\frac{9}{16}$	1.42808	718.0725	1.42943	722.5456	1.43078	727.0326
$\frac{19}{32}$	1.42813	718.2121	1.42947	722.6856	1.43082	727.1730
$\frac{5}{8}$	1.42817	718.3517	1.42952	722.8256	1.43086	727.3135
$\frac{21}{32}$	1.42821	718.4913	1.42956	722.9657	1.43090	727.4539
$\frac{11}{16}$	1.42825	718.6309	1.42960	723.1057	1.43094	727.5944
$\frac{23}{32}$	1.42830	718.7705	1.42964	723.2458	1.43099	727.7349
$\frac{3}{4}$	1.42834	718.9102	1.42969	723.3859	1.43103	727.8754
$\frac{25}{32}$	1.42838	719.0498	1.42973	723.5259	1.43107	728.0160
$\frac{13}{16}$	1.42842	719.1895	1.42977	723.6660	1.43111	728.1565
$\frac{27}{32}$	1.42846	719.3292	1.42981	723.8062	1.43115	728.2970
$\frac{7}{8}$	1.42851	719.4689	1.42985	723.9463	1.43120	728.4376
$\frac{29}{32}$	1.42855	719.6086	1.42990	724.0864	1.43124	728.5782
$\frac{15}{16}$	1.42859	719.7483	1.42994	724.2266	1.43128	728.7188
$\frac{31}{32}$	1.42863	719.8880	1.42998	724.3668	1.43132	728.8594
1	1.42867	720.0278	1.43002	724.5069	1.43136	729.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.43136	729.0000	1.43270	733.5069	1.43404	738.0278
$\frac{1}{32}$	1.43141	729.1406	1.43274	733.6480	1.43408	738.1693
$\frac{1}{16}$	1.43145	729.2813	1.43279	733.7891	1.43412	738.3108
$\frac{3}{32}$	1.43149	729.4219	1.43283	733.9302	1.43416	738.4523
$\frac{1}{8}$	1.43153	729.5626	1.43287	734.0713	1.43420	738.5939
$\frac{5}{32}$	1.43157	729.7033	1.43291	734.2124	1.43424	738.7354
$\frac{3}{16}$	1.43162	729.8440	1.43295	734.3535	1.43429	738.8770
$\frac{7}{32}$	1.43166	729.9847	1.43299	734.4947	1.43433	739.0186
$\frac{1}{4}$	1.43170	730.1254	1.43304	734.6359	1.43437	739.1602
$\frac{9}{32}$	1.43174	730.2662	1.43308	734.7770	1.43441	739.3018
$\frac{5}{16}$	1.43178	730.4069	1.43312	734.9182	1.43445	739.4434
$\frac{11}{32}$	1.43182	730.5477	1.43316	735.0594	1.43449	739.5850
$\frac{3}{8}$	1.43187	730.6885	1.43320	735.2006	1.43454	739.7267
$\frac{13}{32}$	1.43191	730.8293	1.43324	735.3419	1.43458	739.8683
$\frac{7}{16}$	1.43195	730.9701	1.43329	735.4831	1.43462	740.0100
$\frac{15}{32}$	1.43199	731.1109	1.43333	735.6244	1.43466	740.1517
$\frac{1}{2}$	1.43203	731.2517	1.43337	735.7656	1.43470	740.2934
$\frac{17}{32}$	1.43208	731.3926	1.43341	735.9069	1.43474	740.4351
$\frac{9}{16}$	1.43212	731.5334	1.43345	736.0482	1.43479	740.5769
$\frac{19}{32}$	1.43216	731.6743	1.43349	736.1895	1.43483	740.7186
$\frac{5}{8}$	1.43220	731.8152	1.43354	736.3308	1.43487	740.8604
$\frac{21}{32}$	1.43224	731.9561	1.43358	736.4722	1.43491	741.0021
$\frac{11}{16}$	1.43228	732.0970	1.43362	736.6135	1.43495	741.1439
$\frac{23}{32}$	1.43233	732.2380	1.43366	736.7549	1.43499	741.2857
$\frac{3}{4}$	1.43237	732.3789	1.43370	736.8963	1.43503	741.4275
$\frac{25}{32}$	1.43241	732.5199	1.43374	737.0377	1.43508	741.5693
$\frac{13}{16}$	1.43245	732.6608	1.43379	737.1791	1.43512	741.7112
$\frac{27}{32}$	1.43249	732.8018	1.43383	737.3205	1.43516	741.8530
$\frac{7}{8}$	1.43254	732.9428	1.43387	737.4619	1.43520	741.9949
$\frac{29}{32}$	1.43258	733.0838	1.43391	737.6034	1.43524	742.1368
$\frac{15}{16}$	1.43262	733.2249	1.43395	737.7448	1.43528	742.2787
$\frac{31}{32}$	1.43266	733.3659	1.43399	737.8863	1.43533	742.4206
1	1.43270	733.5069	1.43404	738.0278	1.43537	742.5625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.43537	742.5625	1.43669	747.1111	1.43801	751.6736
$\frac{1}{32}$	1.43541	742.7044	1.43673	747.2535	1.43806	751.8164
$\frac{1}{16}$	1.43545	742.8464	1.43678	747.3959	1.43810	751.9592
$\frac{3}{32}$	1.43549	742.9883	1.43682	747.5383	1.43814	752.1021
$\frac{1}{8}$	1.43553	743.1303	1.43686	747.6807	1.43818	752.2449
$\frac{5}{32}$	1.43557	743.2723	1.43690	747.8231	1.43822	752.3878
$\frac{3}{16}$	1.43562	743.4143	1.43694	747.9655	1.43826	752.5306
$\frac{7}{32}$	1.43566	743.5563	1.43698	748.1080	1.43830	752.6735
$\frac{1}{4}$	1.43570	743.6984	1.43702	748.2504	1.43834	752.8164
$\frac{9}{32}$	1.43574	743.8404	1.43706	748.3929	1.43839	752.9593
$\frac{5}{16}$	1.43578	743.9824	1.43711	748.5354	1.43843	753.1022
$\frac{11}{32}$	1.43582	744.1245	1.43715	748.6779	1.43847	753.2452
$\frac{3}{8}$	1.43586	744.2666	1.43719	748.8204	1.43851	753.3881
$\frac{13}{32}$	1.43591	744.4087	1.43723	748.9630	1.43855	753.5311
$\frac{7}{16}$	1.43595	744.5508	1.43727	749.1055	1.43859	753.6741
$\frac{15}{32}$	1.43599	744.6929	1.43731	749.2481	1.43863	753.8171
$\frac{1}{2}$	1.43603	744.8351	1.43735	749.3906	1.43867	753.9601
$\frac{17}{32}$	1.43607	744.9772	1.43740	749.5332	1.43872	754.1031
$\frac{9}{16}$	1.43611	745.1194	1.43744	749.6758	1.43876	754.2461
$\frac{19}{32}$	1.43615	745.2616	1.43748	749.8184	1.43880	754.3892
$\frac{5}{8}$	1.43620	745.4038	1.43752	749.9610	1.43884	754.5322
$\frac{21}{32}$	1.43624	745.5460	1.43756	750.1037	1.43888	754.6753
$\frac{11}{16}$	1.43628	745.6882	1.43760	750.2463	1.43892	754.8184
$\frac{23}{32}$	1.43632	745.8304	1.43764	750.3890	1.43896	754.9615
$\frac{3}{4}$	1.43636	745.9727	1.43768	750.5317	1.43900	755.1046
$\frac{25}{32}$	1.43640	746.1149	1.43773	750.6744	1.43904	755.2477
$\frac{13}{16}$	1.43644	746.2572	1.43777	750.8171	1.43909	755.3909
$\frac{27}{32}$	1.43649	746.3995	1.43781	750.9598	1.43913	755.5340
$\frac{7}{8}$	1.43653	746.5418	1.43785	751.1025	1.43917	755.6772
$\frac{29}{32}$	1.43657	746.6841	1.43789	751.2453	1.43921	755.8204
$\frac{15}{16}$	1.43661	746.8264	1.43793	751.3880	1.43925	755.9636
$\frac{31}{32}$	1.43665	746.9688	1.43797	751.5308	1.43929	756.1068
1	1.43669	747.1111	1.43801	751.6736	1.43933	756.2500

Fractions of an inch	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.43983	756.2500	1.44065	760.8403	1.44196	765.4444
$\frac{1}{32}$	1.43987	756.3932	1.44069	760.9839	1.44200	765.5885
$\frac{1}{16}$	1.43941	756.5365	1.44073	761.1276	1.44204	765.7327
$\frac{3}{32}$	1.43946	756.6797	1.44077	761.2713	1.44208	765.8768
$\frac{1}{8}$	1.43950	756.8230	1.44081	761.4150	1.44212	766.0209
$\frac{5}{32}$	1.43954	756.9663	1.44085	761.5588	1.44216	766.1651
$\frac{3}{16}$	1.43958	757.1096	1.44089	761.7025	1.44220	766.3093
$\frac{7}{32}$	1.43962	757.2529	1.44093	761.8463	1.44224	766.4535
$\frac{1}{4}$	1.43966	757.3963	1.44097	761.9900	1.44228	766.5977
$\frac{9}{32}$	1.43970	757.5396	1.44102	762.1338	1.44232	766.7419
$\frac{5}{16}$	1.43974	757.6830	1.44106	762.2776	1.44237	766.8861
$\frac{11}{32}$	1.43978	757.8263	1.44110	762.4214	1.44241	767.0303
$\frac{3}{8}$	1.43983	757.9697	1.44114	762.5652	1.44245	767.1746
$\frac{13}{32}$	1.43987	758.1131	1.44118	762.7090	1.44249	767.3189
$\frac{7}{16}$	1.43991	758.2565	1.44122	762.8529	1.44253	767.4631
$\frac{15}{32}$	1.43995	758.4000	1.44126	762.9968	1.44257	767.6074
$\frac{1}{2}$	1.43999	758.5434	1.44130	763.1406	1.44261	767.7517
$\frac{17}{32}$	1.44003	758.6869	1.44134	763.2845	1.44265	767.8961
$\frac{9}{16}$	1.44007	758.8303	1.44138	763.4284	1.44269	768.0404
$\frac{19}{32}$	1.44011	758.9738	1.44143	763.5723	1.44273	768.1847
$\frac{5}{8}$	1.44015	759.1173	1.44147	763.7163	1.44277	768.3291
$\frac{21}{32}$	1.44020	759.2608	1.44151	763.8602	1.44281	768.4735
$\frac{11}{16}$	1.44024	759.4043	1.44155	764.0042	1.44286	768.6179
$\frac{23}{32}$	1.44028	759.5479	1.44159	764.1481	1.44290	768.7623
$\frac{3}{4}$	1.44032	759.6914	1.44163	764.2921	1.44294	768.9067
$\frac{25}{32}$	1.44036	759.8350	1.44167	764.4361	1.44298	769.0511
$\frac{13}{16}$	1.44040	759.9785	1.44171	764.5801	1.44302	769.1956
$\frac{27}{32}$	1.44044	760.1221	1.44175	764.7241	1.44306	769.3400
$\frac{7}{8}$	1.44048	760.2657	1.44179	764.8682	1.44310	769.4845
$\frac{29}{32}$	1.44052	760.4093	1.44183	765.0122	1.44314	769.6290
$\frac{15}{16}$	1.44056	760.5530	1.44188	765.1563	1.44318	769.7735
$\frac{31}{32}$	1.44061	760.6966	1.44192	765.3004	1.44322	769.9180
1	1.44065	760.8403	1.44196	765.4444	1.44326	770.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.44328	770.0625	1.44457	774.6944	1.44586	779.3403
$\frac{1}{32}$	1.44330	770.2070	1.44461	774.8394	1.44590	779.4857
$\frac{1}{16}$	1.44334	770.3516	1.44465	774.9844	1.44594	779.6311
$\frac{3}{32}$	1.44339	770.4962	1.44469	775.1294	1.44599	779.7765
$\frac{1}{8}$	1.44343	770.6407	1.44473	775.2744	1.44603	779.9220
$\frac{5}{32}$	1.44347	770.7853	1.44477	775.4194	1.44607	780.0674
$\frac{3}{16}$	1.44351	770.9299	1.44481	775.5645	1.44611	780.2129
$\frac{7}{32}$	1.44355	771.0746	1.44485	775.7095	1.44615	780.3584
$\frac{1}{4}$	1.44359	771.2192	1.44489	775.8546	1.44619	780.5039
$\frac{9}{32}$	1.44363	771.3638	1.44493	775.9997	1.44623	780.6494
$\frac{5}{16}$	1.44367	771.5085	1.44497	776.1448	1.44627	780.7949
$\frac{11}{32}$	1.44371	771.6532	1.44501	776.2899	1.44631	780.9405
$\frac{3}{8}$	1.44375	771.7979	1.44505	776.4350	1.44635	781.0860
$\frac{13}{32}$	1.44379	771.9426	1.44509	776.5801	1.44639	781.2316
$\frac{7}{16}$	1.44383	772.0873	1.44513	776.7253	1.44643	781.3772
$\frac{15}{32}$	1.44387	772.2320	1.44517	776.8704	1.44647	781.5228
$\frac{1}{2}$	1.44391	772.3767	1.44521	777.0156	1.44651	781.6684
$\frac{17}{32}$	1.44396	772.5215	1.44526	777.1608	1.44655	781.8140
$\frac{9}{16}$	1.44400	772.6663	1.44530	777.3060	1.44659	781.9597
$\frac{19}{32}$	1.44404	772.8110	1.44534	777.4512	1.44663	782.1053
$\frac{5}{8}$	1.44408	772.9558	1.44538	777.5965	1.44667	782.2510
$\frac{21}{32}$	1.44412	773.1006	1.44542	777.7417	1.44671	782.3967
$\frac{11}{16}$	1.44416	773.2455	1.44546	777.8870	1.44675	782.5423
$\frac{23}{32}$	1.44420	773.3903	1.44550	778.0322	1.44679	782.6880
$\frac{3}{4}$	1.44424	773.5352	1.44554	778.1775	1.44683	782.8338
$\frac{25}{32}$	1.44428	773.6800	1.44558	778.3228	1.44688	782.9795
$\frac{13}{16}$	1.44432	773.8249	1.44562	778.4681	1.44692	783.1252
$\frac{27}{32}$	1.44436	773.9698	1.44566	778.6135	1.44696	783.2710
$\frac{7}{8}$	1.44440	774.1147	1.44570	778.7588	1.44700	783.4168
$\frac{29}{32}$	1.44444	774.2596	1.44574	778.9041	1.44704	783.5626
$\frac{15}{16}$	1.44448	774.4045	1.44578	779.0495	1.44708	783.7084
$\frac{31}{32}$	1.44452	774.5495	1.44582	779.1949	1.44712	783.8542
1	1.44457	774.6944	1.44586	779.3403	1.44716	784.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.44716	784.0000	1.44845	788.6736	1.44974	793.3611
$\frac{1}{32}$	1.44720	784.1458	1.44849	788.8199	1.44978	793.5078
$\frac{1}{16}$	1.44724	784.2917	1.44853	788.9662	1.44982	793.6545
$\frac{3}{32}$	1.44728	784.4376	1.44857	789.1125	1.44986	793.8013
$\frac{1}{8}$	1.44732	784.5834	1.44861	789.2588	1.44990	793.9480
$\frac{5}{32}$	1.44736	784.7293	1.44865	789.4051	1.44994	794.0948
$\frac{3}{16}$	1.44740	784.8752	1.44869	789.5515	1.44998	794.2416
$\frac{7}{32}$	1.44744	785.0212	1.44873	789.6978	1.45002	794.3884
$\frac{1}{4}$	1.44748	785.1671	1.44877	789.8442	1.45006	794.5352
$\frac{9}{32}$	1.44752	785.3130	1.44881	789.9906	1.45010	794.6820
$\frac{5}{16}$	1.44756	785.4590	1.44885	790.1370	1.45014	794.8288
$\frac{11}{32}$	1.44760	785.6050	1.44889	790.2834	1.45018	794.9756
$\frac{3}{8}$	1.44764	785.7510	1.44893	790.4298	1.45022	795.1225
$\frac{13}{32}$	1.44768	785.8970	1.44897	790.5762	1.45026	795.2694
$\frac{7}{16}$	1.44772	786.0430	1.44901	790.7227	1.45030	795.4163
$\frac{15}{32}$	1.44776	786.1890	1.44905	790.8691	1.45034	795.5632
$\frac{1}{2}$	1.44780	786.3351	1.44909	791.0156	1.45038	795.7101
$\frac{17}{32}$	1.44784	786.4811	1.44913	791.1621	1.45042	795.8570
$\frac{9}{16}$	1.44788	786.6272	1.44917	791.3086	1.45046	796.0039
$\frac{19}{32}$	1.44792	786.7733	1.44921	791.4551	1.45050	796.1509
$\frac{5}{8}$	1.44797	786.9194	1.44925	791.6017	1.45054	796.2979
$\frac{21}{32}$	1.44801	787.0655	1.44929	791.7482	1.45058	796.4448
$\frac{11}{16}$	1.44805	787.2116	1.44933	791.8948	1.45062	796.5918
$\frac{23}{32}$	1.44809	787.3578	1.44937	792.0413	1.45066	796.7388
$\frac{3}{4}$	1.44813	787.5039	1.44941	792.1879	1.45070	796.8859
$\frac{25}{32}$	1.44817	787.6501	1.44945	792.3345	1.45074	797.0329
$\frac{13}{16}$	1.44821	787.7963	1.44949	792.4811	1.45078	797.1799
$\frac{27}{32}$	1.44825	787.9424	1.44953	792.6278	1.45082	797.3270
$\frac{7}{8}$	1.44829	788.0886	1.44957	792.7744	1.45086	797.4741
$\frac{29}{32}$	1.44833	788.2349	1.44961	792.9211	1.45090	797.6212
$\frac{15}{16}$	1.44837	788.3811	1.44965	793.0677	1.45094	797.7683
$\frac{31}{32}$	1.44841	788.5274	1.44970	793.2144	1.45098	797.9154
1	1.44845	788.6736	1.44974	793.3611	1.45102	798.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.45102	798.0625	1.45230	802.7778	1.45357	807.5069
$\frac{1}{32}$	1.45106	798.2006	1.45234	802.9254	1.45361	807.6550
$\frac{1}{16}$	1.45110	798.3568	1.45238	803.0729	1.45365	807.8030
$\frac{3}{32}$	1.45114	798.5040	1.45242	803.2205	1.45369	807.9510
$\frac{1}{8}$	1.45118	798.6512	1.45246	803.3682	1.45373	808.0991
$\frac{5}{32}$	1.45122	798.7983	1.45250	803.5158	1.45377	808.2471
$\frac{3}{16}$	1.45126	798.9456	1.45254	803.6634	1.45381	808.3952
$\frac{7}{32}$	1.45130	799.0928	1.45258	803.8111	1.45385	808.5433
$\frac{1}{4}$	1.45134	799.2400	1.45262	803.9588	1.45389	808.6914
$\frac{9}{32}$	1.45138	799.3873	1.45266	804.1065	1.45393	808.8395
$\frac{5}{16}$	1.45142	799.5345	1.45270	804.2542	1.45397	808.9877
$\frac{11}{32}$	1.45146	799.6818	1.45274	804.4019	1.45401	809.1358
$\frac{3}{8}$	1.45150	799.8291	1.45278	804.5496	1.45405	809.2840
$\frac{13}{32}$	1.45154	799.9764	1.45282	804.6973	1.45409	809.4321
$\frac{7}{16}$	1.45158	800.1237	1.45286	804.8451	1.45413	809.5803
$\frac{15}{32}$	1.45162	800.2711	1.45290	804.9928	1.45417	809.7285
$\frac{1}{2}$	1.45166	800.4184	1.45294	805.1406	1.45421	809.8767
$\frac{17}{32}$	1.45170	800.5658	1.45298	805.2884	1.45425	810.0250
$\frac{9}{16}$	1.45174	800.7131	1.45302	805.4362	1.45429	810.1732
$\frac{19}{32}$	1.45178	800.8605	1.45306	805.5840	1.45433	810.3215
$\frac{5}{8}$	1.45182	801.0079	1.45310	805.7319	1.45437	810.4697
$\frac{21}{32}$	1.45186	801.1553	1.45314	805.8797	1.45441	810.6180
$\frac{11}{16}$	1.45190	801.3028	1.45317	806.0276	1.45445	810.7663
$\frac{23}{32}$	1.45194	801.4502	1.45321	806.1755	1.45449	810.9146
$\frac{3}{4}$	1.45198	801.5977	1.45325	806.3234	1.45453	811.0629
$\frac{25}{32}$	1.45202	801.7451	1.45329	806.4713	1.45457	811.2113
$\frac{13}{16}$	1.45206	801.8926	1.45333	806.6192	1.45461	811.3596
$\frac{27}{32}$	1.45210	802.0401	1.45337	806.7671	1.45465	811.5080
$\frac{7}{8}$	1.45214	802.1876	1.45341	806.9150	1.45469	811.6564
$\frac{29}{32}$	1.45218	802.3351	1.45345	807.0630	1.45473	811.8047
$\frac{15}{16}$	1.45222	802.4827	1.45349	807.2110	1.45477	811.9532
$\frac{31}{32}$	1.45226	802.6302	1.45353	807.3589	1.45481	812.1016
1	1.45230	802.7778	1.45357	807.5069	1.45484	812.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.45484	812.2500	1.45611	817.0069	1.45738	821.7778
$\frac{1}{32}$	1.45488	812.3984	1.45615	817.1558	1.45742	821.9271
$\frac{1}{16}$	1.45492	812.5469	1.45619	817.3047	1.45746	822.0764
$\frac{3}{32}$	1.45496	812.6954	1.45623	817.4536	1.45750	822.2258
$\frac{1}{8}$	1.45500	812.8439	1.45627	817.6025	1.45753	822.3751
$\frac{5}{32}$	1.45504	812.9924	1.45631	817.7515	1.45757	822.5245
$\frac{3}{16}$	1.45508	813.1409	1.45635	817.9004	1.45761	822.6739
$\frac{7}{32}$	1.45512	813.2894	1.45639	818.0494	1.45765	822.8232
$\frac{1}{4}$	1.45516	813.4379	1.45643	818.1984	1.45769	822.9727
$\frac{9}{32}$	1.45520	813.5865	1.45647	818.3473	1.45773	823.1221
$\frac{5}{16}$	1.45524	813.7351	1.45651	818.4963	1.45777	823.2715
$\frac{11}{32}$	1.45528	813.8836	1.45655	818.6454	1.45781	823.4210
$\frac{3}{8}$	1.45532	814.0322	1.45659	818.7944	1.45785	823.5704
$\frac{13}{32}$	1.45536	814.1808	1.45663	818.9434	1.45789	823.7199
$\frac{7}{16}$	1.45540	814.3295	1.45667	819.0925	1.45793	823.8694
$\frac{15}{32}$	1.45544	814.4781	1.45671	819.2415	1.45797	824.0189
$\frac{1}{2}$	1.45548	814.6267	1.45675	819.3906	1.45801	824.1684
$\frac{17}{32}$	1.45552	814.7754	1.45679	819.5397	1.45805	824.3179
$\frac{9}{16}$	1.45556	814.9241	1.45683	819.6888	1.45809	824.4675
$\frac{19}{32}$	1.45560	815.0728	1.45686	819.8380	1.45813	824.6170
$\frac{5}{8}$	1.45564	815.2215	1.45690	819.9871	1.45817	824.7666
$\frac{21}{32}$	1.45568	815.3702	1.45694	820.1362	1.45820	824.9162
$\frac{11}{16}$	1.45572	815.5189	1.45698	820.2854	1.45824	825.0658
$\frac{23}{32}$	1.45576	815.6677	1.45702	820.4346	1.45828	825.2154
$\frac{3}{4}$	1.45580	815.8164	1.45706	820.5838	1.45832	825.3650
$\frac{25}{32}$	1.45584	815.9652	1.45710	820.7330	1.45836	825.5147
$\frac{13}{16}$	1.45588	816.1140	1.45714	820.8822	1.45840	825.6643
$\frac{27}{32}$	1.45591	816.2628	1.45718	821.0314	1.45844	825.8140
$\frac{7}{8}$	1.45595	816.4116	1.45722	821.1807	1.45848	825.9637
$\frac{29}{32}$	1.45599	816.5604	1.45726	821.3299	1.45852	826.1133
$\frac{15}{16}$	1.45603	816.7092	1.45730	821.4792	1.45856	826.2630
$\frac{31}{32}$	1.45607	816.8581	1.45734	821.6285	1.45860	826.4128
1	1.45611	817.0069	1.45738	821.7778	1.45864	826.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.45864	826.5625	1.45869	831.3611	1.46115	836.1736
$\frac{1}{32}$	1.45868	826.7122	1.45893	831.5113	1.46119	836.3242
$\frac{1}{16}$	1.45872	826.8620	1.45897	831.6615	1.46123	836.4746
$\frac{3}{32}$	1.45876	827.0118	1.46001	831.8117	1.46127	836.6251
$\frac{1}{8}$	1.45880	827.1616	1.46005	831.9619	1.46130	836.7762
$\frac{5}{32}$	1.45883	827.3114	1.46009	832.1121	1.46134	836.9268
$\frac{3}{16}$	1.45887	827.4612	1.46013	832.2624	1.46138	837.0771
$\frac{7}{32}$	1.45891	827.6110	1.46017	832.4127	1.46142	837.2282
$\frac{1}{4}$	1.45895	827.7609	1.46021	832.5629	1.46146	837.3786
$\frac{9}{32}$	1.45899	827.9107	1.46025	832.7132	1.46150	837.5290
$\frac{5}{16}$	1.45903	828.0606	1.46029	832.8635	1.46154	837.6804
$\frac{11}{32}$	1.45907	828.2105	1.46033	833.0138	1.46158	837.8311
$\frac{3}{8}$	1.45911	828.3604	1.46037	833.1642	1.46162	837.9816
$\frac{13}{32}$	1.45915	828.5103	1.46040	833.3145	1.46166	838.1327
$\frac{7}{16}$	1.45919	828.6602	1.46044	833.4649	1.46170	838.2834
$\frac{15}{32}$	1.45923	828.8101	1.46048	833.6152	1.46173	838.4342
$\frac{1}{2}$	1.45927	828.9601	1.46052	833.7656	1.46177	838.5851
$\frac{17}{32}$	1.45931	829.1100	1.46056	833.9160	1.46181	838.7356
$\frac{9}{16}$	1.45935	829.2600	1.46060	834.0664	1.46185	838.8867
$\frac{19}{32}$	1.45938	829.4100	1.46064	834.2169	1.46189	839.0376
$\frac{5}{8}$	1.45942	829.5600	1.46068	834.3673	1.46193	839.1885
$\frac{21}{32}$	1.45946	829.7100	1.46072	834.5177	1.46197	839.3394
$\frac{11}{16}$	1.45950	829.8601	1.46076	834.6682	1.46201	839.4903
$\frac{23}{32}$	1.45954	830.0101	1.46080	834.8187	1.46205	839.6412
$\frac{3}{4}$	1.45958	830.1602	1.46084	834.9692	1.46209	839.7921
$\frac{25}{32}$	1.45962	830.3102	1.46087	835.1197	1.46212	839.9430
$\frac{13}{16}$	1.45966	830.4603	1.46091	835.2702	1.46216	840.0940
$\frac{27}{32}$	1.45970	830.6104	1.46095	835.4207	1.46220	840.2450
$\frac{7}{8}$	1.45974	830.7605	1.46099	835.5713	1.46224	840.3958
$\frac{29}{32}$	1.45978	830.9107	1.46103	835.7218	1.46228	840.5466
$\frac{15}{16}$	1.45982	831.0608	1.46107	835.8724	1.46232	840.6971
$\frac{31}{32}$	1.45986	831.2109	1.46111	836.0230	1.46236	840.8480
1	1.45989	831.3611	1.46115	836.1736	1.46240	841.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.46240	841.0000	1.46364	845.8403	1.46489	850.6944
$\frac{1}{32}$	1.46244	841.1510	1.46368	845.9918	1.46493	850.8464
$\frac{1}{16}$	1.46248	841.3021	1.46372	846.1433	1.46496	850.9983
$\frac{3}{32}$	1.46251	841.4532	1.46376	846.2948	1.46500	851.1502
$\frac{1}{8}$	1.46255	841.6043	1.46380	846.4463	1.46504	851.3022
$\frac{5}{32}$	1.46259	841.7554	1.46384	846.5978	1.46508	851.4542
$\frac{3}{16}$	1.46263	841.9065	1.46388	846.7494	1.46512	851.6061
$\frac{7}{32}$	1.46267	842.0576	1.46392	846.9009	1.46516	851.7581
$\frac{1}{4}$	1.46271	842.2088	1.46396	847.0525	1.46520	851.9102
$\frac{9}{32}$	1.46275	842.3599	1.46399	847.2041	1.46524	852.0622
$\frac{5}{16}$	1.46279	842.5111	1.46403	847.3557	1.46527	852.2142
$\frac{11}{32}$	1.46283	842.6623	1.46407	847.5073	1.46531	852.3663
$\frac{3}{8}$	1.46287	842.8135	1.46411	847.6590	1.46535	852.5183
$\frac{13}{32}$	1.46290	842.9647	1.46415	847.8106	1.46539	852.6704
$\frac{7}{16}$	1.46294	843.1159	1.46419	847.9623	1.46543	852.8225
$\frac{15}{32}$	1.46298	843.2672	1.46423	848.1139	1.46547	852.9746
$\frac{1}{2}$	1.46302	843.4184	1.46427	848.2656	1.46551	853.1267
$\frac{17}{32}$	1.46306	843.5697	1.46430	848.4173	1.46555	853.2789
$\frac{9}{16}$	1.46310	843.7209	1.46434	848.5690	1.46558	853.4310
$\frac{19}{32}$	1.46314	843.8722	1.46438	848.7208	1.46562	853.5832
$\frac{5}{8}$	1.46318	844.0235	1.46442	848.8725	1.46566	853.7354
$\frac{21}{32}$	1.46322	844.1749	1.46446	849.0243	1.46570	853.8875
$\frac{11}{16}$	1.46326	844.3262	1.46450	849.1760	1.46574	854.0397
$\frac{23}{32}$	1.46329	844.4775	1.46454	849.3278	1.46578	854.1920
$\frac{3}{4}$	1.46333	844.6289	1.46458	849.4796	1.46582	854.3442
$\frac{25}{32}$	1.46337	844.7803	1.46462	849.6314	1.46586	854.4964
$\frac{13}{16}$	1.46341	844.9317	1.46465	849.7832	1.46589	854.6487
$\frac{27}{32}$	1.46345	845.0831	1.46469	849.9351	1.46593	854.8010
$\frac{7}{8}$	1.46349	845.2345	1.46473	850.0869	1.46597	854.9532
$\frac{29}{32}$	1.46353	845.3859	1.46477	850.2388	1.46601	855.1055
$\frac{15}{16}$	1.46357	845.5374	1.46481	850.3907	1.46605	855.2578
$\frac{31}{32}$	1.46361	845.6888	1.46485	850.5425	1.46609	855.4102
1	1.46364	845.8403	1.46489	850.6944	1.46613	855.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.46613	855.5625	1.46736	860.4444	1.46859	865.3403
$\frac{1}{32}$	1.46616	855.7149	1.46740	860.5972	1.46863	865.4935
$\frac{1}{16}$	1.46620	855.8672	1.46744	860.7500	1.46867	865.6467
$\frac{3}{32}$	1.46624	856.0196	1.46748	860.9028	1.46871	865.8000
$\frac{1}{8}$	1.46628	856.1720	1.46752	861.0557	1.46875	865.9532
$\frac{5}{32}$	1.46632	856.3244	1.46755	861.2085	1.46879	866.1065
$\frac{3}{16}$	1.46636	856.4768	1.46759	861.3614	1.46882	866.2598
$\frac{7}{32}$	1.46640	856.6292	1.46763	861.5142	1.46886	866.4131
$\frac{1}{4}$	1.46644	856.7817	1.46767	861.6671	1.46890	866.5664
$\frac{9}{32}$	1.46647	856.9341	1.46771	861.8200	1.46894	866.7197
$\frac{5}{16}$	1.46651	857.0866	1.46775	861.9729	1.46898	866.8731
$\frac{11}{32}$	1.46655	857.2391	1.46779	862.1258	1.46902	867.0264
$\frac{3}{8}$	1.46659	857.3916	1.46782	862.2788	1.46905	867.1798
$\frac{13}{32}$	1.46663	857.5441	1.46786	862.4317	1.46909	867.3332
$\frac{7}{16}$	1.46667	857.6966	1.46790	862.5847	1.46913	867.4866
$\frac{15}{32}$	1.46671	857.8492	1.46794	862.7376	1.46917	867.6400
$\frac{1}{2}$	1.46674	858.0017	1.46798	862.8906	1.46921	867.7934
$\frac{17}{32}$	1.46678	858.1543	1.46802	863.0436	1.46925	867.9468
$\frac{9}{16}$	1.46682	858.3069	1.46805	863.1966	1.46928	868.1003
$\frac{19}{32}$	1.46686	858.4595	1.46809	863.3497	1.46932	868.2538
$\frac{5}{8}$	1.46690	858.6121	1.46813	863.5027	1.46936	868.4072
$\frac{21}{32}$	1.46694	858.7647	1.46817	863.6558	1.46940	868.5607
$\frac{11}{16}$	1.46698	858.9173	1.46821	863.8088	1.46944	868.7142
$\frac{23}{32}$	1.46701	859.0700	1.46825	863.9619	1.46948	868.8677
$\frac{3}{4}$	1.46705	859.2227	1.46829	864.1150	1.46952	869.0213
$\frac{25}{32}$	1.46709	859.3753	1.46832	864.2681	1.46955	869.1748
$\frac{13}{16}$	1.46713	859.5280	1.46836	864.4213	1.46959	869.3284
$\frac{27}{32}$	1.46717	859.6807	1.46840	864.5744	1.46963	869.4819
$\frac{7}{8}$	1.46721	859.8334	1.46844	864.7275	1.46967	869.6355
$\frac{29}{32}$	1.46725	859.9862	1.46848	864.8807	1.46971	869.7891
$\frac{15}{16}$	1.46728	860.1389	1.46852	865.0339	1.46975	869.9427
$\frac{31}{32}$	1.46732	860.2917	1.46856	865.1871	1.46978	870.0964
1	1.46736	860.4444	1.46859	865.3403	1.46982	870.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.46862	870.2500	1.47105	875.1736	1.47227	880.1111
$\frac{1}{64}$	1.46866	870.4037	1.47109	875.3277	1.47231	880.2656
$\frac{1}{32}$	1.46890	870.5573	1.47112	875.4818	1.47234	880.4202
$\frac{3}{64}$	1.46994	870.7110	1.47116	875.6359	1.47238	880.5747
$\frac{1}{8}$	1.46998	870.8647	1.47120	875.7900	1.47242	880.7293
$\frac{5}{64}$	1.47001	871.0184	1.47124	875.9442	1.47246	880.8839
$\frac{3}{16}$	1.47005	871.1721	1.47128	876.0983	1.47250	881.0384
$\frac{7}{64}$	1.47009	871.3259	1.47131	876.2525	1.47254	881.1930
$\frac{1}{4}$	1.47013	871.4796	1.47135	876.4067	1.47257	881.3477
$\frac{9}{64}$	1.47017	871.6334	1.47139	876.5609	1.47261	881.5023
$\frac{5}{16}$	1.47021	871.7871	1.47143	876.7151	1.47265	881.6569
$\frac{11}{64}$	1.47024	871.9409	1.47147	876.8693	1.47269	881.8116
$\frac{3}{8}$	1.47028	872.0947	1.47151	877.0235	1.47273	881.9663
$\frac{13}{64}$	1.47032	872.2485	1.47154	877.1778	1.47276	882.1209
$\frac{7}{16}$	1.47036	872.4024	1.47158	877.3321	1.47280	882.2756
$\frac{15}{64}$	1.47040	872.5562	1.47162	877.4863	1.47284	882.4303
$\frac{1}{2}$	1.47043	872.7101	1.47166	877.6406	1.47288	882.5851
$\frac{17}{64}$	1.47047	872.8639	1.47170	877.7949	1.47292	882.7398
$\frac{9}{16}$	1.47051	873.0178	1.47173	877.9492	1.47296	882.8946
$\frac{19}{64}$	1.47055	873.1717	1.47177	878.1036	1.47299	883.0493
$\frac{5}{8}$	1.47059	873.3256	1.47181	878.2579	1.47303	883.2041
$\frac{21}{64}$	1.47063	873.4796	1.47185	878.4123	1.47307	883.3589
$\frac{11}{16}$	1.47066	873.6335	1.47189	878.5666	1.47311	883.5137
$\frac{23}{64}$	1.47070	873.7874	1.47193	878.7210	1.47314	883.6685
$\frac{3}{4}$	1.47074	873.9414	1.47196	878.8754	1.47318	883.8234
$\frac{25}{64}$	1.47078	874.0954	1.47200	879.0298	1.47322	883.9782
$\frac{13}{16}$	1.47082	874.2494	1.47204	879.1843	1.47326	884.1331
$\frac{27}{64}$	1.47086	874.4034	1.47208	879.3387	1.47330	884.2879
$\frac{7}{8}$	1.47089	874.5574	1.47212	879.4932	1.47333	884.4428
$\frac{29}{64}$	1.47093	874.7114	1.47215	879.6476	1.47337	884.5977
$\frac{15}{16}$	1.47097	874.8655	1.47219	879.8021	1.47341	884.7526
$\frac{31}{64}$	1.47101	875.0195	1.47223	879.9566	1.47345	884.9076
1	1.47105	875.1736	1.47227	880.1111	1.47349	885.0625

# 29'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.47349	885.0625	1.47470	890.0278	1.47591	895.0069
$\frac{1}{32}$	1.47352	885.2175	1.47474	890.1832	1.47595	895.1628
$\frac{1}{16}$	1.47356	885.3724	1.47478	890.3386	1.47599	895.3186
$\frac{3}{32}$	1.47360	885.5274	1.47482	890.4940	1.47603	895.4745
$\frac{1}{8}$	1.47364	885.6824	1.47485	890.6494	1.47606	895.6303
$\frac{5}{32}$	1.47368	885.8374	1.47489	890.8049	1.47610	895.7862
$\frac{3}{16}$	1.47372	885.9924	1.47493	890.9603	1.47614	895.9421
$\frac{7}{32}$	1.47375	886.1475	1.47497	891.1158	1.47618	896.0980
$\frac{1}{4}$	1.47379	886.3025	1.47500	891.2713	1.47622	896.2539
$\frac{9}{32}$	1.47383	886.4576	1.47504	891.4268	1.47625	896.4098
$\frac{5}{16}$	1.47387	886.6127	1.47508	891.5823	1.47629	896.5658
$\frac{11}{32}$	1.47390	886.7677	1.47512	891.7378	1.47633	896.7217
$\frac{3}{8}$	1.47394	886.9229	1.47516	891.8933	1.47637	896.8777
$\frac{13}{32}$	1.47398	887.0780	1.47519	892.0489	1.47640	897.0337
$\frac{7}{16}$	1.47402	887.2331	1.47523	892.2045	1.47644	897.1897
$\frac{15}{32}$	1.47406	887.3882	1.47527	892.3600	1.47648	897.3457
$\frac{1}{2}$	1.47409	887.5434	1.47531	892.5156	1.47652	897.5017
$\frac{17}{32}$	1.47413	887.6986	1.47535	892.6712	1.47656	897.6578
$\frac{9}{16}$	1.47417	887.8538	1.47538	892.8269	1.47659	897.8138
$\frac{19}{32}$	1.47421	888.0090	1.47542	892.9825	1.47663	897.9699
$\frac{5}{8}$	1.47425	888.1642	1.47546	893.1381	1.47667	898.1260
$\frac{21}{32}$	1.47428	888.3194	1.47550	893.2938	1.47671	898.2821
$\frac{11}{16}$	1.47432	888.4746	1.47553	893.4495	1.47674	898.4382
$\frac{23}{32}$	1.47436	888.6299	1.47557	893.6051	1.47678	898.5943
$\frac{3}{4}$	1.47440	888.7852	1.47561	893.7609	1.47682	898.7504
$\frac{25}{32}$	1.47444	888.9404	1.47565	893.9166	1.47686	898.9066
$\frac{13}{16}$	1.47447	889.0957	1.47569	894.0723	1.47690	899.0627
$\frac{27}{32}$	1.47451	889.2510	1.47572	894.2280	1.47693	899.2189
$\frac{7}{8}$	1.47455	889.4064	1.47576	894.3838	1.47697	899.3751
$\frac{29}{32}$	1.47459	889.5617	1.47580	894.5396	1.47701	899.5313
$\frac{15}{16}$	1.47463	889.7170	1.47584	894.6953	1.47705	899.6875
$\frac{31}{32}$	1.47466	889.8724	1.47588	894.8511	1.47708	899.8438
1	1.47470	890.0278	1.47591	895.0069	1.47712	900.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.47712	900.0000	1.47833	905.0069	1.47953	910.0278
$\frac{1}{32}$	1.47716	900.1563	1.47836	905.1636	1.47956	910.1849
$\frac{1}{16}$	1.47720	900.3125	1.47840	905.3203	1.47960	910.3420
$\frac{3}{32}$	1.47723	900.4688	1.47844	905.4771	1.47964	910.4992
$\frac{1}{8}$	1.47727	900.6251	1.47848	905.6338	1.47968	910.6564
$\frac{5}{32}$	1.47731	900.7814	1.47851	905.7905	1.47971	910.8135
$\frac{3}{16}$	1.47735	900.9377	1.47855	905.9473	1.47975	910.9707
$\frac{7}{32}$	1.47739	901.0941	1.47859	906.1041	1.47979	911.1279
$\frac{1}{4}$	1.47742	901.2504	1.47863	906.2609	1.47983	911.2852
$\frac{9}{32}$	1.47746	901.4068	1.47866	906.4176	1.47986	911.4424
$\frac{5}{16}$	1.47750	901.5632	1.47870	906.5745	1.47990	911.5996
$\frac{11}{32}$	1.47754	901.7196	1.47874	906.7313	1.47994	911.7569
$\frac{3}{8}$	1.47757	901.8760	1.47878	906.8881	1.47998	911.9142
$\frac{13}{32}$	1.47761	902.0324	1.47881	907.0450	1.48001	912.0715
$\frac{7}{16}$	1.47765	902.1888	1.47885	907.2018	1.48005	912.2288
$\frac{15}{32}$	1.47769	902.3453	1.47889	907.3587	1.48009	912.3861
$\frac{1}{2}$	1.47772	902.5017	1.47893	907.5156	1.48013	912.5434
$\frac{17}{32}$	1.47776	902.6582	1.47896	907.6725	1.48016	912.7007
$\frac{9}{16}$	1.47780	902.8147	1.47900	907.8295	1.48020	912.8581
$\frac{19}{32}$	1.47784	902.9712	1.47904	907.9864	1.48024	913.0155
$\frac{5}{8}$	1.47787	903.1277	1.47908	908.1433	1.48028	913.1729
$\frac{21}{32}$	1.47791	903.2842	1.47911	908.3003	1.48031	913.3302
$\frac{11}{16}$	1.47795	903.4408	1.47915	908.4573	1.48035	913.4877
$\frac{23}{32}$	1.47799	903.5973	1.47919	908.6143	1.48039	913.6451
$\frac{3}{4}$	1.47803	903.7539	1.47923	908.7713	1.48043	913.8025
$\frac{25}{32}$	1.47806	903.9105	1.47926	908.9283	1.48046	913.9600
$\frac{13}{16}$	1.47810	904.0671	1.47930	909.0853	1.48050	914.1174
$\frac{27}{32}$	1.47814	904.2237	1.47934	909.2424	1.48054	914.2749
$\frac{7}{8}$	1.47818	904.3803	1.47938	909.3994	1.48058	914.4324
$\frac{29}{32}$	1.47821	904.5370	1.47941	909.5565	1.48061	914.5899
$\frac{15}{16}$	1.47825	904.6936	1.47945	909.7136	1.48065	914.7474
$\frac{31}{32}$	1.47829	904.8503	1.47949	909.8707	1.48069	914.9050
1	1.47833	905.0069	1.47953	910.0278	1.48073	915.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.48073	915.0625	1.48192	920.1111	1.48311	925.1736
$\frac{1}{32}$	1.48076	915.2201	1.48196	920.2691	1.48315	925.3320
$\frac{1}{16}$	1.48080	915.3776	1.48199	920.4271	1.48319	925.4905
$\frac{3}{32}$	1.48084	915.5352	1.48203	920.5851	1.48322	925.6489
$\frac{1}{8}$	1.48087	915.6928	1.48207	920.7432	1.48326	925.8074
$\frac{5}{32}$	1.48091	915.8504	1.48211	920.9012	1.48330	925.9659
$\frac{3}{16}$	1.48095	916.0081	1.48214	921.0593	1.48333	926.1244
$\frac{7}{32}$	1.48099	916.1657	1.48218	921.2173	1.48337	926.2829
$\frac{1}{4}$	1.48102	916.3234	1.48222	921.3754	1.48341	926.4414
$\frac{9}{32}$	1.48106	916.4810	1.48226	921.5335	1.48345	926.5999
$\frac{5}{16}$	1.48110	916.6387	1.48229	921.6917	1.48348	926.7585
$\frac{11}{32}$	1.48114	916.7964	1.48233	921.8498	1.48352	926.9171
$\frac{3}{8}$	1.48117	916.9541	1.48237	922.0079	1.48356	927.0756
$\frac{13}{32}$	1.48121	917.1118	1.48240	922.1661	1.48359	927.2342
$\frac{7}{16}$	1.48125	917.2696	1.48244	922.3242	1.48363	927.3928
$\frac{15}{32}$	1.48129	917.4273	1.48248	922.4824	1.48367	927.5514
$\frac{1}{2}$	1.48132	917.5851	1.48252	922.6406	1.48371	927.7101
$\frac{17}{32}$	1.48136	917.7428	1.48255	922.7988	1.48374	927.8687
$\frac{9}{16}$	1.48140	917.9006	1.48259	922.9571	1.48378	928.0274
$\frac{19}{32}$	1.48144	918.0584	1.48263	923.1153	1.48382	928.1860
$\frac{5}{8}$	1.48147	918.2163	1.48267	923.2735	1.48385	928.3447
$\frac{21}{32}$	1.48151	918.3741	1.48270	923.4318	1.48389	928.5034
$\frac{11}{16}$	1.48155	918.5319	1.48274	923.5901	1.48393	928.6621
$\frac{23}{32}$	1.48158	918.6898	1.48278	923.7484	1.48397	928.8209
$\frac{3}{4}$	1.48162	918.8477	1.48281	923.9067	1.48400	928.9796
$\frac{25}{32}$	1.48166	919.0055	1.48285	924.0650	1.48404	929.1384
$\frac{13}{16}$	1.48170	919.1634	1.48289	924.2233	1.48408	929.2971
$\frac{27}{32}$	1.48173	919.3214	1.48293	924.3817	1.48411	929.4559
$\frac{7}{8}$	1.48177	919.4793	1.48296	924.5400	1.48415	929.6147
$\frac{29}{32}$	1.48181	919.6372	1.48300	924.6984	1.48419	929.7735
$\frac{15}{16}$	1.48185	919.7952	1.48304	924.8568	1.48423	929.9323
$\frac{31}{32}$	1.48188	919.9531	1.48307	925.0152	1.48426	930.0912
1	1.48192	920.1111	1.48311	925.1736	1.48430	930.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.48430	930.2500	1.48548	935.3403	1.48667	940.4444
$\frac{1}{32}$	1.48434	930.4089	1.48552	935.4996	1.48670	940.6042
$\frac{1}{16}$	1.48437	930.5677	1.48556	935.6589	1.48674	940.7639
$\frac{3}{32}$	1.48441	930.7266	1.48560	935.8182	1.48678	940.9237
$\frac{1}{8}$	1.48445	930.8855	1.48563	935.9775	1.48681	941.0834
$\frac{5}{32}$	1.48449	931.0444	1.48567	936.1369	1.48685	941.2432
$\frac{3}{16}$	1.48452	931.2034	1.48571	936.2963	1.48689	941.4030
$\frac{1}{4}$	1.48456	931.3623	1.48574	936.4556	1.48692	941.5628
$\frac{5}{16}$	1.48460	931.5213	1.48578	936.6150	1.48696	941.7227
$\frac{3}{8}$	1.48463	931.6802	1.48582	936.7744	1.48700	941.8825
$\frac{7}{16}$	1.48467	931.8392	1.48585	936.9338	1.48704	942.0423
$\frac{11}{32}$	1.48471	931.9982	1.48589	937.0933	1.48707	942.2022
$\frac{1}{2}$	1.48474	932.1572	1.48593	937.2527	1.48711	942.3621
$\frac{13}{32}$	1.48478	932.3163	1.48597	937.4122	1.48715	942.5220
$\frac{3}{4}$	1.48482	932.4753	1.48600	937.5716	1.48718	942.6819
$\frac{15}{32}$	1.48486	932.6343	1.48604	937.7311	1.48722	942.8418
$\frac{7}{8}$	1.48489	932.7934	1.48608	937.8906	1.48726	943.0017
$\frac{17}{32}$	1.48493	932.9525	1.48611	938.0501	1.48729	943.1617
$\frac{9}{16}$	1.48497	933.1116	1.48615	938.2097	1.48733	943.3216
$\frac{19}{32}$	1.48500	933.2707	1.48619	938.3692	1.48737	943.4816
$\frac{5}{8}$	1.48504	933.4298	1.48622	938.5288	1.48740	943.6416
$\frac{21}{32}$	1.48508	933.5889	1.48626	938.6883	1.48744	943.8016
$\frac{11}{16}$	1.48511	933.7481	1.48630	938.8479	1.48748	943.9616
$\frac{23}{32}$	1.48515	933.9072	1.48633	939.0075	1.48751	944.1216
$\frac{3}{4}$	1.48519	934.0664	1.48637	939.1671	1.48755	944.2817
$\frac{25}{32}$	1.48523	934.2256	1.48641	939.3267	1.48759	944.4417
$\frac{13}{16}$	1.48526	934.3848	1.48645	939.4864	1.48762	944.6018
$\frac{27}{32}$	1.48530	934.5440	1.48648	939.6460	1.48766	944.7619
$\frac{7}{8}$	1.48534	934.7032	1.48652	939.8057	1.48770	944.9220
$\frac{29}{32}$	1.48537	934.8625	1.48656	939.9653	1.48773	945.0821
$\frac{15}{16}$	1.48541	935.0217	1.48659	940.1250	1.48777	945.2422
$\frac{31}{32}$	1.48545	935.1810	1.48663	940.2847	1.48781	945.4024
1	1.48548	935.3403	1.48667	940.4444	1.48785	945.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.48785	945.5625	1.48902	950.6944	1.49019	955.8403
$\frac{1}{32}$	1.48788	945.7227	1.48906	950.8550	1.49023	956.0013
$\frac{1}{16}$	1.48792	945.8828	1.48909	951.0157	1.49027	956.1624
$\frac{3}{32}$	1.48796	946.0430	1.48913	951.1763	1.49030	956.3234
$\frac{1}{8}$	1.48799	946.2032	1.48917	951.3369	1.49034	956.4845
$\frac{5}{32}$	1.48803	946.3635	1.48920	951.4976	1.49038	956.6456
$\frac{3}{16}$	1.48807	946.5237	1.48924	951.6582	1.49041	956.8067
$\frac{7}{32}$	1.48810	946.6839	1.48928	951.8189	1.49045	956.9678
$\frac{1}{4}$	1.48814	946.8442	1.48931	951.9796	1.49049	957.1289
$\frac{9}{32}$	1.48818	947.0045	1.48935	952.1403	1.49052	957.2900
$\frac{5}{16}$	1.48821	947.1647	1.48939	952.3010	1.49056	957.4512
$\frac{11}{32}$	1.48825	947.3250	1.48942	952.4618	1.49059	957.6124
$\frac{3}{8}$	1.48829	947.4854	1.48946	952.6225	1.49063	957.7735
$\frac{13}{32}$	1.48832	947.6457	1.48950	952.7833	1.49067	957.9347
$\frac{7}{16}$	1.48836	947.8060	1.48953	952.9440	1.49070	958.0959
$\frac{15}{32}$	1.48840	947.9664	1.48957	953.1048	1.49074	958.2572
$\frac{1}{2}$	1.48843	948.1267	1.48961	953.2656	1.49078	958.4184
$\frac{17}{32}$	1.48847	948.2871	1.48964	953.4264	1.49081	958.5797
$\frac{9}{16}$	1.48851	948.4475	1.48968	953.5873	1.49085	958.7409
$\frac{19}{32}$	1.48854	948.6079	1.48972	953.7481	1.49089	958.9022
$\frac{5}{8}$	1.48858	948.7683	1.48975	953.9090	1.49092	959.0635
$\frac{21}{32}$	1.48862	948.9288	1.48979	954.0698	1.49096	959.2248
$\frac{11}{16}$	1.48865	949.0892	1.48983	954.2307	1.49100	959.3861
$\frac{23}{32}$	1.48869	949.2497	1.48986	954.3916	1.49103	959.5474
$\frac{3}{4}$	1.48873	949.4102	1.48990	954.5525	1.49107	959.7088
$\frac{25}{32}$	1.48876	949.5706	1.48994	954.7134	1.49111	959.8701
$\frac{13}{16}$	1.48880	949.7311	1.48997	954.8744	1.49114	960.0315
$\frac{27}{32}$	1.48884	949.8917	1.49001	955.0353	1.49118	960.1929
$\frac{7}{8}$	1.48887	950.0522	1.49005	955.1963	1.49122	960.3543
$\frac{29}{32}$	1.48891	950.2127	1.49008	955.3573	1.49125	960.5157
$\frac{15}{16}$	1.48895	950.3733	1.49012	955.5183	1.49129	960.6771
$\frac{31}{32}$	1.48898	950.5339	1.49016	955.6793	1.49133	960.8385
1	1.48902	950.6944	1.49019	955.8403	1.49136	961.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.49136	961.0000	1.49253	966.1736	1.49369	971.3611
$\frac{1}{32}$	1.49140	961.1615	1.49256	966.3355	1.49373	971.5234
$\frac{1}{16}$	1.49143	961.3229	1.49260	966.4974	1.49376	971.6858
$\frac{3}{32}$	1.49147	961.4844	1.49264	966.6593	1.49380	971.8482
$\frac{1}{8}$	1.49151	961.6459	1.49267	966.8213	1.49384	972.0105
$\frac{5}{32}$	1.49154	961.8075	1.49271	966.9832	1.49387	972.1729
$\frac{3}{16}$	1.49158	961.9690	1.49275	967.1452	1.49391	972.3353
$\frac{7}{32}$	1.49162	962.1305	1.49278	967.3072	1.49394	972.4977
$\frac{1}{4}$	1.49165	962.2921	1.49282	967.4692	1.49398	972.6602
$\frac{9}{32}$	1.49169	962.4537	1.49285	967.6312	1.49402	972.8226
$\frac{5}{16}$	1.49173	962.6153	1.49289	967.7932	1.49405	972.9851
$\frac{11}{32}$	1.49176	962.7769	1.49293	967.9552	1.49409	973.1475
$\frac{3}{8}$	1.49180	962.9385	1.49296	968.1173	1.49413	973.3100
$\frac{13}{32}$	1.49184	963.1001	1.49300	968.2794	1.49416	973.4725
$\frac{7}{16}$	1.49187	963.2617	1.49304	968.4414	1.49420	973.6350
$\frac{15}{32}$	1.49191	963.4234	1.49307	968.6035	1.49423	973.7975
$\frac{1}{2}$	1.49195	963.5851	1.49311	968.7656	1.49427	973.9601
$\frac{17}{32}$	1.49198	963.7468	1.49315	968.9277	1.49431	974.1226
$\frac{9}{16}$	1.49202	963.9084	1.49318	969.0899	1.49434	974.2852
$\frac{19}{32}$	1.49205	964.0702	1.49322	969.2520	1.49438	974.4478
$\frac{5}{8}$	1.49209	964.2319	1.49325	969.4142	1.49442	974.6104
$\frac{21}{32}$	1.49213	964.3936	1.49329	969.5763	1.49445	974.7730
$\frac{11}{16}$	1.49216	964.5554	1.49333	969.7385	1.49449	974.9356
$\frac{23}{32}$	1.49220	964.7171	1.49336	969.9007	1.49452	975.0982
$\frac{3}{4}$	1.49224	964.8789	1.49340	970.0629	1.49456	975.2609
$\frac{25}{32}$	1.49227	965.0407	1.49344	970.2252	1.49460	975.4235
$\frac{13}{16}$	1.49231	965.2025	1.49347	970.3874	1.49463	975.5862
$\frac{27}{32}$	1.49235	965.3643	1.49351	970.5496	1.49467	975.7489
$\frac{7}{8}$	1.49238	965.5261	1.49355	970.7119	1.49471	975.9116
$\frac{29}{32}$	1.49242	965.6880	1.49358	970.8742	1.49474	976.0743
$\frac{15}{16}$	1.49245	965.8499	1.49362	971.0365	1.49478	976.2370
$\frac{31}{32}$	1.49249	966.0117	1.49365	971.1988	1.49481	976.3997
1	1.49253	966.1736	1.49369	971.3611	1.49485	976.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.49485	976.5625	1.49601	981.7778	1.49716	987.0069
$\frac{1}{32}$	1.49489	976.7253	1.49604	981.9410	1.49720	987.1706
$\frac{1}{16}$	1.49492	976.8880	1.49608	982.1042	1.49723	987.3342
$\frac{3}{32}$	1.49496	977.0508	1.49611	982.2674	1.49727	987.4979
$\frac{1}{8}$	1.49499	977.2137	1.49615	982.4307	1.49730	987.6616
$\frac{5}{32}$	1.49503	977.3765	1.49619	982.5939	1.49734	987.8253
$\frac{3}{16}$	1.49507	977.5393	1.49622	982.7572	1.49738	987.9890
$\frac{7}{32}$	1.49510	977.7022	1.49626	982.9205	1.49741	988.1527
$\frac{1}{4}$	1.49514	977.8650	1.49630	983.0838	1.49745	988.3164
$\frac{9}{32}$	1.49518	978.0279	1.49633	983.2471	1.49748	988.4802
$\frac{5}{16}$	1.49521	978.1908	1.49637	983.4104	1.49752	988.6439
$\frac{11}{32}$	1.49525	978.3537	1.49640	983.5737	1.49756	988.8077
$\frac{3}{8}$	1.49528	978.5166	1.49644	983.7371	1.49759	988.9715
$\frac{13}{32}$	1.49532	978.6795	1.49648	983.9005	1.49763	989.1353
$\frac{7}{16}$	1.49536	978.8425	1.49651	984.0638	1.49766	989.2991
$\frac{15}{32}$	1.49539	979.0054	1.49655	984.2272	1.49770	989.4629
$\frac{1}{2}$	1.49543	979.1684	1.49658	984.3906	1.49774	989.6267
$\frac{17}{32}$	1.49546	979.3314	1.49662	984.5540	1.49777	989.7906
$\frac{9}{16}$	1.49550	979.4944	1.49666	984.7175	1.49781	989.9545
$\frac{19}{32}$	1.49554	979.6574	1.49669	984.8809	1.49784	990.1183
$\frac{5}{8}$	1.49557	979.8204	1.49673	985.0444	1.49788	990.2822
$\frac{21}{32}$	1.49561	979.9835	1.49676	985.2079	1.49792	990.4461
$\frac{11}{16}$	1.49565	980.1465	1.49680	985.3713	1.49795	990.6101
$\frac{23}{32}$	1.49568	980.3096	1.49684	985.5348	1.49799	990.7740
$\frac{3}{4}$	1.49572	980.4727	1.49687	985.6984	1.49802	990.9379
$\frac{25}{32}$	1.49575	980.6357	1.49691	985.8619	1.49806	991.1019
$\frac{13}{16}$	1.49579	980.7989	1.49694	986.0254	1.49810	991.2659
$\frac{27}{32}$	1.49583	980.9620	1.49698	986.1890	1.49813	991.4299
$\frac{7}{8}$	1.49586	981.1251	1.49702	986.3525	1.49817	991.5939
$\frac{29}{32}$	1.49590	981.2883	1.49705	986.5161	1.49820	991.7579
$\frac{15}{16}$	1.49593	981.4514	1.49709	986.6797	1.49824	991.9219
$\frac{31}{32}$	1.49597	981.6146	1.49712	986.8433	1.49827	992.0859
1	1.49601	981.7778	1.49716	987.0069	1.49831	992.2500

## 31'

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.49831	992.2500	1.49946	997.5069	1.50060	1002.7778
$\frac{1}{32}$	1.49835	992.4141	1.49949	997.6714	1.50064	1002.9427
$\frac{1}{16}$	1.49838	992.5782	1.49953	997.8360	1.50067	1003.1077
$\frac{3}{32}$	1.49842	992.7422	1.49957	998.0005	1.50071	1003.2726
$\frac{1}{8}$	1.49845	992.9064	1.49960	998.1650	1.50075	1003.4376
$\frac{5}{32}$	1.49849	993.0705	1.49964	998.3296	1.50078	1003.6026
$\frac{3}{16}$	1.49853	993.2346	1.49967	998.4942	1.50082	1003.7676
$\frac{7}{32}$	1.49856	993.3988	1.49971	998.6588	1.50085	1003.9326
$\frac{1}{4}$	1.49860	993.5629	1.49974	998.8234	1.50089	1004.0977
$\frac{9}{32}$	1.49863	993.7271	1.49978	998.9880	1.50092	1004.2627
$\frac{5}{16}$	1.49867	993.8913	1.49982	999.1526	1.50096	1004.4278
$\frac{11}{32}$	1.49871	994.0555	1.49985	999.3172	1.50100	1004.5928
$\frac{3}{8}$	1.49874	994.2197	1.49989	999.4819	1.50103	1004.7579
$\frac{13}{32}$	1.49878	994.3840	1.49992	999.6465	1.50107	1004.9230
$\frac{7}{16}$	1.49881	994.5482	1.49996	999.8112	1.50110	1005.0881
$\frac{15}{32}$	1.49885	994.7125	1.49999	999.9759	1.50114	1005.2533
$\frac{1}{2}$	1.49888	994.8767	1.50003	1000.1406	1.50117	1005.4184
$\frac{17}{32}$	1.49892	995.0410	1.50007	1000.3053	1.50121	1005.5836
$\frac{9}{16}$	1.49896	995.2053	1.50010	1000.4701	1.50124	1005.7487
$\frac{19}{32}$	1.49899	995.3696	1.50014	1000.6348	1.50128	1005.9139
$\frac{5}{8}$	1.49903	995.5340	1.50017	1000.7996	1.50132	1006.0791
$\frac{21}{32}$	1.49906	995.6983	1.50021	1000.9644	1.50135	1006.2443
$\frac{11}{16}$	1.49910	995.8627	1.50025	1001.1292	1.50139	1006.4095
$\frac{23}{32}$	1.49914	996.0270	1.50028	1001.2940	1.50142	1006.5748
$\frac{3}{4}$	1.49917	996.1914	1.50032	1001.4588	1.50146	1006.7400
$\frac{25}{32}$	1.49921	996.3558	1.50035	1001.6236	1.50149	1006.9053
$\frac{13}{16}$	1.49924	996.5202	1.50039	1001.7884	1.50153	1007.0706
$\frac{27}{32}$	1.49928	996.6846	1.50042	1001.9533	1.50157	1007.2358
$\frac{7}{8}$	1.49931	996.8491	1.50046	1002.1182	1.50160	1007.4012
$\frac{29}{32}$	1.49935	997.0135	1.50050	1002.2830	1.50164	1007.5665
$\frac{15}{16}$	1.49939	997.1780	1.50053	1002.4479	1.50167	1007.7318
$\frac{31}{32}$	1.49942	997.3425	1.50057	1002.6129	1.50171	1007.8971
1	1.49946	997.5069	1.50060	1002.7778	1.50174	1008.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.50174	1008.0625	1.50288	1013.3611	1.50402	1018.673
$\frac{1}{32}$	1.50178	1008.2279	1.50292	1013.5269	1.50405	1018.839
$\frac{1}{16}$	1.50181	1008.3933	1.50295	1013.6927	1.50409	1019.006
$\frac{3}{32}$	1.50185	1008.5587	1.50299	1013.8586	1.50412	1019.172
$\frac{1}{8}$	1.50189	1008.7241	1.50302	1014.0244	1.50416	1019.338
$\frac{5}{32}$	1.50192	1008.8895	1.50306	1014.1903	1.50419	1019.504
$\frac{3}{16}$	1.50196	1009.0549	1.50310	1014.3561	1.50423	1019.671
$\frac{7}{32}$	1.50199	1009.2204	1.50313	1014.5220	1.50427	1019.837
$\frac{1}{4}$	1.50203	1009.3859	1.50317	1014.6879	1.50430	1020.003
$\frac{9}{32}$	1.50206	1009.5513	1.50320	1014.8538	1.50434	1020.170
$\frac{5}{16}$	1.50210	1009.7168	1.50324	1015.0198	1.50437	1020.336
$\frac{11}{32}$	1.50214	1009.8823	1.50327	1015.1857	1.50441	1020.503
$\frac{3}{8}$	1.50217	1010.0479	1.50331	1015.3517	1.50444	1020.669
$\frac{13}{32}$	1.50221	1010.2134	1.50334	1015.5176	1.50448	1020.835
$\frac{7}{16}$	1.50224	1010.3789	1.50338	1015.6836	1.50451	1021.002
$\frac{15}{32}$	1.50228	1010.5445	1.50341	1015.8496	1.50455	1021.168
$\frac{1}{2}$	1.50231	1010.7101	1.50345	1016.0156	1.50458	1021.335
$\frac{17}{32}$	1.50235	1010.8757	1.50349	1016.1816	1.50462	1021.501
$\frac{9}{16}$	1.50238	1011.0413	1.50352	1016.3477	1.50465	1021.668
$\frac{19}{32}$	1.50242	1011.2069	1.50356	1016.5137	1.50469	1021.834
$\frac{5}{8}$	1.50246	1011.3725	1.50359	1016.6798	1.50473	1022.001
$\frac{21}{32}$	1.50249	1011.5381	1.50363	1016.8459	1.50476	1022.167
$\frac{11}{16}$	1.50253	1011.7038	1.50366	1017.0120	1.50480	1022.334
$\frac{23}{32}$	1.50256	1011.8695	1.50370	1017.1781	1.50483	1022.500
$\frac{3}{4}$	1.50260	1012.0352	1.50373	1017.3442	1.50487	1022.667
$\frac{25}{32}$	1.50263	1012.2009	1.50377	1017.5103	1.50490	1022.833
$\frac{13}{16}$	1.50267	1012.3666	1.50380	1017.6765	1.50494	1023.000
$\frac{27}{32}$	1.50270	1012.5323	1.50384	1017.8426	1.50497	1023.166
$\frac{7}{8}$	1.50274	1012.6980	1.50388	1018.0088	1.50501	1023.333
$\frac{29}{32}$	1.50278	1012.8638	1.50391	1018.1750	1.50504	1023.500
$\frac{15}{16}$	1.50281	1013.0295	1.50395	1018.3412	1.50508	1023.667
$\frac{31}{32}$	1.50285	1013.1953	1.50398	1018.5074	1.50511	1023.833
1	1.50288	1013.3611	1.50402	1018.6736	1.50515	1024.000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.50515	1024.0000	1.50628	1029.3403	1.50741	1034.6944
$\frac{1}{32}$	1.50519	1024.1667	1.50631	1029.5074	1.50744	1034.8620
$\frac{1}{16}$	1.50522	1024.3334	1.50635	1029.6745	1.50748	1035.0295
$\frac{3}{32}$	1.50526	1024.5001	1.50639	1029.8416	1.50751	1035.1971
$\frac{1}{8}$	1.50529	1024.6668	1.50642	1030.0088	1.50755	1035.3647
$\frac{5}{32}$	1.50533	1024.8335	1.50646	1030.1760	1.50758	1035.5323
$\frac{3}{16}$	1.50536	1025.0002	1.50649	1030.3431	1.50762	1035.6999
$\frac{7}{32}$	1.50540	1025.1670	1.50653	1030.5103	1.50765	1035.8675
$\frac{1}{4}$	1.50543	1025.3338	1.50656	1030.6775	1.50769	1036.0352
$\frac{9}{32}$	1.50547	1025.5005	1.50660	1030.8447	1.50772	1036.2028
$\frac{5}{16}$	1.50550	1025.6673	1.50663	1031.0120	1.50776	1036.3705
$\frac{11}{32}$	1.50554	1025.8342	1.50667	1031.1792	1.50779	1036.5381
$\frac{3}{8}$	1.50557	1026.0010	1.50670	1031.3465	1.50783	1036.7058
$\frac{13}{32}$	1.50561	1026.1678	1.50674	1031.5137	1.50786	1036.8735
$\frac{7}{16}$	1.50564	1026.3347	1.50677	1031.6810	1.50790	1037.0413
$\frac{15}{32}$	1.50568	1026.5015	1.50681	1031.8483	1.50793	1037.2090
$\frac{1}{2}$	1.50572	1026.6684	1.50684	1032.0156	1.50797	1037.3767
$\frac{17}{32}$	1.50575	1026.8353	1.50688	1032.1829	1.50800	1037.5445
$\frac{9}{16}$	1.50579	1027.0022	1.50691	1032.3503	1.50804	1037.7123
$\frac{19}{32}$	1.50582	1027.1691	1.50695	1032.5176	1.50807	1037.8801
$\frac{5}{8}$	1.50586	1027.3360	1.50698	1032.6850	1.50811	1038.0479
$\frac{21}{32}$	1.50589	1027.5030	1.50702	1032.8524	1.50814	1038.2157
$\frac{11}{16}$	1.50593	1027.6699	1.50705	1033.0198	1.50818	1038.3835
$\frac{23}{32}$	1.50596	1027.8369	1.50709	1033.1872	1.50821	1038.5513
$\frac{3}{4}$	1.50600	1028.0039	1.50712	1033.3546	1.50825	1038.7192
$\frac{25}{32}$	1.50603	1028.1709	1.50716	1033.5220	1.50828	1038.8871
$\frac{13}{16}$	1.50607	1028.3379	1.50720	1033.6895	1.50832	1039.0549
$\frac{27}{32}$	1.50610	1028.5049	1.50723	1033.8569	1.50835	1039.2228
$\frac{7}{8}$	1.50614	1028.6720	1.50727	1034.0244	1.50839	1039.3907
$\frac{29}{32}$	1.50617	1028.8390	1.50730	1034.1919	1.50842	1039.5587
$\frac{15}{16}$	1.50621	1029.0061	1.50734	1034.3594	1.50846	1039.7266
$\frac{31}{32}$	1.50624	1029.1732	1.50737	1034.5269	1.50849	1039.8945
1	1.50628	1029.3403	1.50741	1034.6944	1.50853	1040.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.50853	1040.0625	1.50965	1045.4444	1.51077	1050.8403
$\frac{1}{32}$	1.50856	1040.2305	1.50969	1045.6129	1.51080	1051.0091
$\frac{1}{16}$	1.50860	1040.3985	1.50972	1045.7813	1.51084	1051.1780
$\frac{3}{32}$	1.50863	1040.5665	1.50976	1045.9497	1.51087	1051.3468
$\frac{1}{8}$	1.50867	1040.7345	1.50979	1046.1182	1.51091	1051.5157
$\frac{5}{32}$	1.50871	1040.9025	1.50983	1046.2866	1.51094	1051.6846
$\frac{3}{16}$	1.50874	1041.0708	1.50986	1046.4551	1.51098	1051.8535
$\frac{7}{32}$	1.50878	1041.2386	1.50990	1046.6236	1.51101	1052.0225
$\frac{1}{4}$	1.50881	1041.4067	1.50993	1046.7921	1.51105	1052.1914
$\frac{9}{32}$	1.50885	1041.5748	1.50997	1046.9606	1.51108	1052.3604
$\frac{5}{16}$	1.50888	1041.7429	1.51000	1047.1292	1.51112	1052.5293
$\frac{11}{32}$	1.50892	1041.9110	1.51004	1047.2977	1.51115	1052.6983
$\frac{3}{8}$	1.50895	1042.0791	1.51007	1047.4663	1.51119	1052.8673
$\frac{13}{32}$	1.50899	1042.2472	1.51010	1047.6348	1.51122	1053.0363
$\frac{7}{16}$	1.50902	1042.4154	1.51014	1047.8034	1.51126	1053.2053
$\frac{15}{32}$	1.50906	1042.5836	1.51017	1047.9720	1.51129	1053.3744
$\frac{1}{2}$	1.50909	1042.7517	1.51021	1048.1406	1.51133	1053.5434
$\frac{17}{32}$	1.50913	1042.9199	1.51024	1048.3093	1.51136	1053.7125
$\frac{9}{16}$	1.50916	1043.0881	1.51028	1048.4779	1.51140	1053.8815
$\frac{19}{32}$	1.50920	1043.2564	1.51031	1048.6465	1.51143	1054.0506
$\frac{5}{8}$	1.50923	1043.4246	1.51035	1048.8152	1.51147	1054.2197
$\frac{21}{32}$	1.50927	1043.5928	1.51038	1048.9839	1.51150	1054.3888
$\frac{11}{16}$	1.50930	1043.7611	1.51042	1049.1526	1.51154	1054.5580
$\frac{23}{32}$	1.50934	1043.9294	1.51045	1049.3213	1.51157	1054.7271
$\frac{3}{4}$	1.50937	1044.0977	1.51049	1049.4900	1.51160	1054.8963
$\frac{25}{32}$	1.50941	1044.2660	1.51052	1049.6588	1.51164	1055.0654
$\frac{13}{16}$	1.50944	1044.4343	1.51056	1049.8275	1.51167	1055.2346
$\frac{27}{32}$	1.50948	1044.6026	1.51059	1049.9963	1.51171	1055.4038
$\frac{7}{8}$	1.50951	1044.7709	1.51063	1050.1650	1.51174	1055.5730
$\frac{29}{32}$	1.50955	1044.9393	1.51066	1050.3338	1.51178	1055.7422
$\frac{15}{16}$	1.50958	1045.1077	1.51070	1050.5026	1.51181	1055.9115
$\frac{31}{32}$	1.50962	1045.2760	1.51073	1050.6714	1.51185	1056.0807
1	1.50965	1045.4444	1.51077	1050.8403	1.51188	1056.2500

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.51851	1089.0000	1.51961	1094.5069	1.52070	1100.0278
$\frac{1}{32}$	1.51855	1089.1719	1.51964	1094.6793	1.52074	1100.2005
$\frac{1}{16}$	1.51858	1089.3438	1.51968	1094.8516	1.52077	1100.3733
$\frac{3}{32}$	1.51862	1089.5157	1.51971	1095.0239	1.52080	1100.5461
$\frac{1}{8}$	1.51865	1089.6876	1.51975	1095.1963	1.52084	1100.7189
$\frac{5}{32}$	1.51869	1089.8595	1.51978	1095.3687	1.52087	1100.8917
$\frac{3}{16}$	1.51872	1090.0315	1.51981	1095.5410	1.52091	1101.0645
$\frac{7}{32}$	1.51875	1090.2035	1.51985	1095.7134	1.52094	1101.2373
$\frac{1}{4}$	1.51879	1090.3754	1.51988	1095.8859	1.52097	1101.4102
$\frac{9}{32}$	1.51882	1090.5474	1.51992	1096.0583	1.52101	1101.5830
$\frac{5}{16}$	1.51886	1090.7194	1.51995	1096.2307	1.52104	1101.7559
$\frac{11}{32}$	1.51889	1090.8914	1.51999	1096.4032	1.52108	1101.9288
$\frac{3}{8}$	1.51893	1091.0635	1.52002	1096.5756	1.52111	1102.1017
$\frac{13}{32}$	1.51896	1091.2355	1.52005	1096.7481	1.52114	1102.2746
$\frac{7}{16}$	1.51899	1091.4076	1.52009	1096.9206	1.52118	1102.4475
$\frac{15}{32}$	1.51903	1091.5797	1.52012	1097.0931	1.52121	1102.6204
$\frac{1}{2}$	1.51906	1091.7517	1.52016	1097.2656	1.52125	1102.7934
$\frac{17}{32}$	1.51910	1091.9238	1.52019	1097.4382	1.52128	1102.9664
$\frac{9}{16}$	1.51913	1092.0959	1.52023	1097.6107	1.52132	1103.1394
$\frac{19}{32}$	1.51916	1092.2681	1.52026	1097.7833	1.52135	1103.3123
$\frac{5}{8}$	1.51920	1092.4402	1.52029	1097.9558	1.52138	1103.4854
$\frac{21}{32}$	1.51923	1092.6124	1.52033	1098.1284	1.52142	1103.6584
$\frac{11}{16}$	1.51927	1092.7845	1.52036	1098.3010	1.52145	1103.8314
$\frac{23}{32}$	1.51930	1092.9567	1.52039	1098.4736	1.52149	1104.0045
$\frac{3}{4}$	1.51934	1093.1289	1.52043	1098.6463	1.52152	1104.1775
$\frac{25}{32}$	1.51937	1093.3011	1.52046	1098.8189	1.52155	1104.3506
$\frac{13}{16}$	1.51940	1093.4733	1.52050	1098.9916	1.52159	1104.5237
$\frac{27}{32}$	1.51944	1093.6456	1.52053	1099.1642	1.52162	1104.6968
$\frac{7}{8}$	1.51947	1093.8178	1.52057	1099.3369	1.52166	1104.8699
$\frac{29}{32}$	1.51951	1093.9901	1.52060	1099.5096	1.52169	1105.0430
$\frac{15}{16}$	1.51954	1094.1624	1.52063	1099.6823	1.52172	1105.2162
$\frac{31}{32}$	1.51958	1094.3346	1.52067	1099.8550	1.52176	1105.3893
1	1.51961	1094.5069	1.52070	1100.0278	1.52179	1105.5625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.52179	1105.5625	1.52288	1111.1111	1.52396	1116.6736
$\frac{1}{32}$	1.52183	1105.7357	1.52291	1111.2847	1.52400	1116.8477
$\frac{1}{16}$	1.52186	1105.9089	1.52295	1111.4584	1.52403	1117.0217
$\frac{3}{32}$	1.52189	1106.0821	1.52298	1111.6320	1.52406	1117.1958
$\frac{1}{8}$	1.52193	1106.2553	1.52301	1111.8057	1.52410	1117.3699
$\frac{5}{32}$	1.52196	1106.4286	1.52305	1111.9793	1.52413	1117.5440
$\frac{3}{16}$	1.52200	1106.6018	1.52308	1112.1530	1.52417	1117.7181
$\frac{7}{32}$	1.52203	1106.7751	1.52312	1112.3267	1.52420	1117.8923
$\frac{1}{4}$	1.52206	1106.9484	1.52315	1112.5004	1.52423	1118.0664
$\frac{9}{32}$	1.52210	1107.1216	1.52318	1112.6742	1.52427	1118.2406
$\frac{5}{16}$	1.52213	1107.2949	1.52322	1112.8479	1.52430	1118.4147
$\frac{11}{32}$	1.52217	1107.4683	1.52325	1113.0217	1.52434	1118.5889
$\frac{3}{8}$	1.52220	1107.6416	1.52329	1113.1954	1.52437	1118.7631
$\frac{13}{32}$	1.52223	1107.8149	1.52332	1113.3692	1.52440	1118.9373
$\frac{7}{16}$	1.52227	1107.9883	1.52335	1113.5430	1.52444	1119.1116
$\frac{15}{32}$	1.52230	1108.1617	1.52339	1113.7168	1.52447	1119.2858
$\frac{1}{2}$	1.52234	1108.3351	1.52342	1113.8906	1.52450	1119.4601
$\frac{17}{32}$	1.52237	1108.5085	1.52346	1114.0645	1.52454	1119.6343
$\frac{9}{16}$	1.52240	1108.6819	1.52349	1114.2383	1.52457	1119.8086
$\frac{19}{32}$	1.52244	1108.8553	1.52352	1114.4122	1.52461	1119.9829
$\frac{5}{8}$	1.52247	1109.0288	1.52356	1114.5860	1.52464	1120.1572
$\frac{21}{32}$	1.52251	1109.2022	1.52359	1114.7599	1.52467	1120.3315
$\frac{11}{16}$	1.52254	1109.3757	1.52362	1114.9338	1.52471	1120.5059
$\frac{23}{32}$	1.52257	1109.5492	1.52366	1115.1078	1.52474	1120.6802
$\frac{3}{4}$	1.52261	1109.7227	1.52369	1115.2817	1.52477	1120.8546
$\frac{25}{32}$	1.52264	1109.8962	1.52373	1115.4556	1.52481	1121.0290
$\frac{13}{16}$	1.52268	1110.0697	1.52376	1115.6296	1.52484	1121.2034
$\frac{27}{32}$	1.52271	1110.2432	1.52379	1115.8036	1.52488	1121.3778
$\frac{7}{8}$	1.52274	1110.4168	1.52383	1115.9775	1.52491	1121.5522
$\frac{29}{32}$	1.52278	1110.5903	1.52386	1116.1515	1.52494	1121.7266
$\frac{15}{16}$	1.52281	1110.7639	1.52390	1116.3255	1.52498	1121.9011
$\frac{31}{32}$	1.52284	1110.9375	1.52393	1116.4996	1.52501	1122.0755
1	1.52288	1111.1111	1.52396	1116.6736	1.52504	1122.2500



Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.52504	1122.2500	1.52612	1127.8403	1.52720	1133.4444
$\frac{1}{32}$	1.52508	1122.4245	1.52616	1128.0152	1.52723	1133.6198
$\frac{1}{16}$	1.52511	1122.5990	1.52619	1128.1901	1.52727	1133.7952
$\frac{3}{32}$	1.52515	1122.7735	1.52622	1128.3651	1.52730	1133.9705
$\frac{1}{8}$	1.52518	1122.9480	1.52626	1128.5400	1.52733	1134.1459
$\frac{5}{32}$	1.52521	1123.1226	1.52629	1128.7150	1.52737	1134.3213
$\frac{3}{16}$	1.52525	1123.2971	1.52633	1128.8900	1.52740	1134.4968
$\frac{7}{32}$	1.52528	1123.4717	1.52636	1129.0650	1.52744	1134.6722
$\frac{1}{4}$	1.52531	1123.6463	1.52639	1129.2400	1.52747	1134.8477
$\frac{9}{32}$	1.52535	1123.8209	1.52643	1129.4150	1.52750	1135.0231
$\frac{5}{16}$	1.52538	1123.9955	1.52646	1129.5901	1.52754	1135.1986
$\frac{11}{32}$	1.52542	1124.1701	1.52649	1129.7651	1.52757	1135.3741
$\frac{3}{8}$	1.52545	1124.3447	1.52653	1129.9402	1.52760	1135.5496
$\frac{13}{32}$	1.52548	1124.5194	1.52656	1130.1153	1.52764	1135.7251
$\frac{7}{16}$	1.52552	1124.6940	1.52660	1130.2904	1.52767	1135.9006
$\frac{15}{32}$	1.52555	1124.8687	1.52663	1130.4655	1.52770	1136.0762
$\frac{1}{2}$	1.52558	1125.0434	1.52666	1130.6406	1.52774	1136.2517
$\frac{17}{32}$	1.52562	1125.2181	1.52670	1130.8158	1.52777	1136.4273
$\frac{9}{16}$	1.52565	1125.3928	1.52673	1130.9909	1.52780	1136.6029
$\frac{19}{32}$	1.52569	1125.5676	1.52676	1131.1661	1.52784	1136.7785
$\frac{5}{8}$	1.52572	1125.7423	1.52680	1131.3413	1.52787	1136.9541
$\frac{21}{32}$	1.52575	1125.9171	1.52683	1131.5164	1.52791	1137.1297
$\frac{11}{16}$	1.52579	1126.0918	1.52686	1131.6917	1.52794	1137.3054
$\frac{23}{32}$	1.52582	1126.2666	1.52690	1131.8669	1.52797	1137.4810
$\frac{3}{4}$	1.52585	1126.4414	1.52693	1132.0421	1.52801	1137.6567
$\frac{25}{32}$	1.52589	1126.6162	1.52696	1132.2173	1.52804	1137.8324
$\frac{13}{16}$	1.52592	1126.7910	1.52700	1132.3926	1.52807	1138.0081
$\frac{27}{32}$	1.52596	1126.9659	1.52703	1132.5679	1.52811	1138.1838
$\frac{7}{8}$	1.52599	1127.1407	1.52707	1132.7432	1.52814	1138.3595
$\frac{29}{32}$	1.52602	1127.3156	1.52710	1132.9185	1.52817	1138.5352
$\frac{15}{16}$	1.52606	1127.4905	1.52713	1133.0938	1.52821	1138.7110
$\frac{31}{32}$	1.52609	1127.6654	1.52717	1133.2691	1.52824	1138.8867
1	1.52612	1127.8403	1.52720	1133.4444	1.52827	1139.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.52827	1139.0625	1.52834	1144.6944	1.53041	1150.3403
$\frac{1}{32}$	1.52831	1139.2363	1.52838	1144.8707	1.53045	1150.5169
$\frac{1}{16}$	1.52834	1139.4141	1.52841	1145.0469	1.53048	1150.6936
$\frac{3}{32}$	1.52837	1139.5899	1.52845	1145.2232	1.53051	1150.8703
$\frac{1}{8}$	1.52841	1139.7657	1.52848	1145.3994	1.53055	1151.0470
$\frac{5}{32}$	1.52844	1139.9416	1.52851	1145.5757	1.53058	1151.2237
$\frac{3}{16}$	1.52847	1140.1174	1.52855	1145.7520	1.53061	1151.4004
$\frac{7}{32}$	1.52851	1140.2933	1.52858	1145.9283	1.53065	1151.5772
$\frac{1}{4}$	1.52854	1140.4692	1.52861	1146.1046	1.53068	1151.7539
$\frac{9}{32}$	1.52858	1140.6451	1.52865	1146.2809	1.53071	1151.9307
$\frac{5}{16}$	1.52861	1140.8210	1.52868	1146.4573	1.53075	1152.1074
$\frac{11}{32}$	1.52864	1140.9969	1.52871	1146.6336	1.53078	1152.2842
$\frac{3}{8}$	1.52868	1141.1729	1.52875	1146.8100	1.53081	1152.4610
$\frac{13}{32}$	1.52871	1141.3488	1.52878	1146.9864	1.53085	1152.6379
$\frac{7}{16}$	1.52874	1141.5248	1.52881	1147.1628	1.53088	1152.8147
$\frac{15}{32}$	1.52878	1141.7007	1.52885	1147.3392	1.53091	1152.9915
$\frac{1}{2}$	1.52881	1141.8767	1.52888	1147.5156	1.53095	1153.1684
$\frac{17}{32}$	1.52884	1142.0527	1.52891	1147.6921	1.53098	1153.3453
$\frac{9}{16}$	1.52888	1142.2288	1.52895	1147.8685	1.53101	1153.5222
$\frac{19}{32}$	1.52891	1142.4048	1.52898	1148.0450	1.53105	1153.6991
$\frac{5}{8}$	1.52894	1142.5808	1.53001	1148.2215	1.53108	1153.8760
$\frac{21}{32}$	1.52898	1142.7569	1.53005	1148.3980	1.53111	1154.0529
$\frac{11}{16}$	1.52901	1142.9330	1.53008	1148.5745	1.53115	1154.2298
$\frac{23}{32}$	1.52904	1143.1091	1.53011	1148.7510	1.53118	1154.4068
$\frac{3}{4}$	1.52908	1143.2852	1.53015	1148.9275	1.53121	1154.5838
$\frac{25}{32}$	1.52911	1143.4613	1.53018	1149.1041	1.53125	1154.7607
$\frac{13}{16}$	1.52914	1143.6374	1.53021	1149.2806	1.53128	1154.9377
$\frac{27}{32}$	1.52918	1143.8135	1.53025	1149.4572	1.53131	1155.1148
$\frac{7}{8}$	1.52921	1143.9897	1.53028	1149.6338	1.53135	1155.2918
$\frac{29}{32}$	1.52924	1144.1659	1.53031	1149.8104	1.53138	1155.4688
$\frac{15}{16}$	1.52928	1144.3420	1.53035	1149.9870	1.53141	1155.6459
$\frac{31}{32}$	1.52931	1144.5182	1.53038	1150.1636	1.53145	1155.8229
1	1.52934	1144.6944	1.53041	1150.3403	1.53148	1156.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.53148	1156.0000	1.53254	1161.6736	1.53360	1167.3611
$\frac{1}{32}$	1.53151	1156.1771	1.53258	1161.8511	1.53364	1167.5391
$\frac{1}{16}$	1.53155	1156.3542	1.53261	1162.0287	1.53367	1167.7170
$\frac{3}{32}$	1.53158	1156.5313	1.53264	1162.2062	1.53370	1167.8950
$\frac{1}{8}$	1.53161	1156.7084	1.53267	1162.3838	1.53373	1168.0730
$\frac{5}{32}$	1.53165	1156.8856	1.53271	1162.5614	1.53377	1168.2510
$\frac{3}{16}$	1.53168	1157.0627	1.53274	1162.7390	1.53380	1168.4291
$\frac{7}{32}$	1.53171	1157.2399	1.53277	1162.9166	1.53383	1168.6071
$\frac{1}{4}$	1.53174	1157.4171	1.53281	1163.0942	1.53387	1168.7852
$\frac{9}{32}$	1.53178	1157.5943	1.53284	1163.2718	1.53390	1168.9632
$\frac{5}{16}$	1.53181	1157.7715	1.53287	1163.4495	1.53393	1169.1413
$\frac{11}{32}$	1.53184	1157.9487	1.53291	1163.6271	1.53397	1169.3194
$\frac{3}{8}$	1.53188	1158.1260	1.53294	1163.8048	1.53400	1169.4975
$\frac{13}{32}$	1.53191	1158.3032	1.53297	1163.9825	1.53403	1169.6756
$\frac{7}{16}$	1.53194	1158.4805	1.53301	1164.1602	1.53407	1169.8538
$\frac{15}{32}$	1.53198	1158.6578	1.53304	1164.3379	1.53410	1170.0319
$\frac{1}{2}$	1.53201	1158.8351	1.53307	1164.5156	1.53413	1170.2101
$\frac{17}{32}$	1.53204	1159.0124	1.53311	1164.6934	1.53416	1170.3882
$\frac{9}{16}$	1.53208	1159.1897	1.53314	1164.8711	1.53420	1170.5664
$\frac{19}{32}$	1.53211	1159.3670	1.53317	1165.0489	1.53423	1170.7446
$\frac{5}{8}$	1.53214	1159.5444	1.53321	1165.2267	1.53426	1170.9229
$\frac{21}{32}$	1.53218	1159.7217	1.53324	1165.4045	1.53430	1171.1011
$\frac{11}{16}$	1.53221	1159.8991	1.53327	1165.5823	1.53433	1171.2793
$\frac{23}{32}$	1.53224	1160.0765	1.53330	1165.7601	1.53436	1171.4576
$\frac{3}{4}$	1.53228	1160.2539	1.53334	1165.9379	1.53440	1171.6359
$\frac{25}{32}$	1.53231	1160.4313	1.53337	1166.1158	1.53443	1171.8141
$\frac{13}{16}$	1.53234	1160.6088	1.53340	1166.2936	1.53446	1171.9924
$\frac{27}{32}$	1.53238	1160.7862	1.53344	1166.4715	1.53450	1172.1707
$\frac{7}{8}$	1.53241	1160.9636	1.53347	1166.6494	1.53453	1172.3491
$\frac{29}{32}$	1.53244	1161.1411	1.53350	1166.8273	1.53456	1172.5274
$\frac{15}{16}$	1.53248	1161.3186	1.53354	1167.0052	1.53459	1172.7058
$\frac{31}{32}$	1.53251	1161.4961	1.53357	1167.1832	1.53463	1172.8841
1	1.53254	1161.6736	1.53360	1167.3611	1.53466	1173.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.53466	1173.0625	1.53572	1178.7778	1.53677	1184.5069
$\frac{1}{32}$	1.53469	1173.2409	1.53575	1178.9566	1.53680	1184.6862
$\frac{1}{16}$	1.53473	1173.4193	1.53578	1179.1354	1.53683	1184.8655
$\frac{3}{32}$	1.53476	1173.5977	1.53581	1179.3143	1.53687	1185.0448
$\frac{1}{8}$	1.53479	1173.7762	1.53585	1179.4932	1.53690	1185.2241
$\frac{5}{32}$	1.53483	1173.9546	1.53588	1179.6720	1.53693	1185.4034
$\frac{3}{16}$	1.53486	1174.1331	1.53591	1179.8509	1.53697	1185.5827
$\frac{7}{32}$	1.53489	1174.3115	1.53595	1180.0298	1.53700	1185.7621
$\frac{1}{4}$	1.53492	1174.4900	1.53598	1180.2088	1.53703	1185.9414
$\frac{9}{32}$	1.53496	1174.6685	1.53601	1180.3877	1.53706	1186.1208
$\frac{5}{16}$	1.53499	1174.8470	1.53605	1180.5667	1.53710	1186.3002
$\frac{11}{32}$	1.53502	1175.0256	1.53608	1180.7456	1.53713	1186.4796
$\frac{3}{8}$	1.53506	1175.2041	1.53611	1180.9246	1.53716	1186.6590
$\frac{13}{32}$	1.53509	1175.3827	1.53614	1181.1036	1.53720	1186.8384
$\frac{7}{16}$	1.53512	1175.5612	1.53618	1181.2826	1.53723	1187.0178
$\frac{15}{32}$	1.53516	1175.7398	1.53621	1181.4616	1.53726	1187.1973
$\frac{1}{2}$	1.53519	1175.9184	1.53624	1181.6406	1.53729	1187.3767
$\frac{17}{32}$	1.53522	1176.0970	1.53628	1181.8197	1.53733	1187.5562
$\frac{9}{16}$	1.53525	1176.2756	1.53631	1181.9987	1.53736	1187.7357
$\frac{19}{32}$	1.53529	1176.4543	1.53634	1182.1778	1.53739	1187.9152
$\frac{5}{8}$	1.53532	1176.6329	1.53637	1182.3569	1.53743	1188.0947
$\frac{21}{32}$	1.53535	1176.8116	1.53641	1182.5360	1.53746	1188.2743
$\frac{11}{16}$	1.53539	1176.9903	1.53644	1182.7151	1.53749	1188.4538
$\frac{23}{32}$	1.53542	1177.1690	1.53647	1182.8942	1.53752	1188.6334
$\frac{3}{4}$	1.53545	1177.3477	1.53651	1183.0734	1.53756	1188.8129
$\frac{25}{32}$	1.53549	1177.5264	1.53654	1183.2525	1.53759	1188.9925
$\frac{13}{16}$	1.53552	1177.7051	1.53657	1183.4317	1.53762	1189.1721
$\frac{27}{32}$	1.53555	1177.8838	1.53660	1183.6108	1.53766	1189.3517
$\frac{7}{8}$	1.53558	1178.0626	1.53664	1183.7900	1.53769	1189.5314
$\frac{29}{32}$	1.53562	1178.2414	1.53667	1183.9692	1.53772	1189.7110
$\frac{15}{16}$	1.53565	1178.4202	1.53670	1184.1485	1.53775	1189.8907
$\frac{31}{32}$	1.53568	1178.5990	1.53674	1184.3277	1.53779	1190.0703
1	1.53572	1178.7778	1.53677	1184.5069	1.53782	1190.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.53782	1190.2500	1.53887	1196.0069	1.53991	1201.7778
$\frac{1}{32}$	1.53785	1190.4297	1.53890	1196.1871	1.53994	1201.9583
$\frac{1}{16}$	1.53788	1190.6094	1.53893	1196.3672	1.53998	1202.1389
$\frac{3}{32}$	1.53792	1190.7891	1.53896	1196.5474	1.54001	1202.3195
$\frac{1}{8}$	1.53795	1190.9689	1.53900	1196.7275	1.54004	1202.5001
$\frac{5}{32}$	1.53798	1191.1486	1.53903	1196.9077	1.54008	1202.6807
$\frac{3}{16}$	1.53802	1191.3284	1.53906	1197.0879	1.54011	1202.8614
$\frac{7}{32}$	1.53805	1191.5081	1.53910	1197.2681	1.54014	1203.0420
$\frac{1}{4}$	1.53808	1191.6879	1.53913	1197.4484	1.54017	1203.2227
$\frac{9}{32}$	1.53811	1191.8677	1.53916	1197.6286	1.54021	1203.4033
$\frac{5}{16}$	1.53815	1192.0476	1.53919	1197.8088	1.54024	1203.5840
$\frac{11}{32}$	1.53818	1192.2274	1.53923	1197.9891	1.54027	1203.7647
$\frac{3}{8}$	1.53821	1192.4072	1.53926	1198.1694	1.54030	1203.9454
$\frac{13}{32}$	1.53825	1192.5871	1.53929	1198.3497	1.54034	1204.1261
$\frac{7}{16}$	1.53828	1192.7670	1.53932	1198.5300	1.54037	1204.3069
$\frac{15}{32}$	1.53831	1192.9468	1.53936	1198.7103	1.54040	1204.4876
$\frac{1}{2}$	1.53834	1193.1267	1.53939	1198.8906	1.54043	1204.6684
$\frac{17}{32}$	1.53838	1193.3066	1.53942	1199.0710	1.54047	1204.8492
$\frac{9}{16}$	1.53841	1193.4866	1.53946	1199.2513	1.54050	1205.0300
$\frac{19}{32}$	1.53844	1193.6665	1.53949	1199.4317	1.54053	1205.2108
$\frac{5}{8}$	1.53847	1193.8465	1.53952	1199.6121	1.54056	1205.3916
$\frac{21}{32}$	1.53851	1194.0264	1.53955	1199.7925	1.54060	1205.5724
$\frac{11}{16}$	1.53854	1194.2064	1.53959	1199.9729	1.54063	1205.7533
$\frac{23}{32}$	1.53857	1194.3864	1.53962	1200.1533	1.54066	1205.9341
$\frac{3}{4}$	1.53861	1194.5664	1.53965	1200.3338	1.54069	1206.1150
$\frac{25}{32}$	1.53864	1194.7464	1.53968	1200.5142	1.54073	1206.2959
$\frac{13}{16}$	1.53867	1194.9265	1.53972	1200.6947	1.54076	1206.4768
$\frac{27}{32}$	1.53870	1195.1065	1.53975	1200.8752	1.54079	1206.6577
$\frac{7}{8}$	1.53874	1195.2866	1.53978	1201.0557	1.54082	1206.8387
$\frac{29}{32}$	1.53877	1195.4666	1.53981	1201.2362	1.54086	1207.0196
$\frac{15}{16}$	1.53880	1195.6467	1.53985	1201.4167	1.54089	1207.2005
$\frac{31}{32}$	1.53883	1195.8268	1.53988	1201.5972	1.54092	1207.3815
1	1.53887	1196.0069	1.53991	1201.7778	1.54095	1207.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.54095	1207.5625	1.54200	1213.3611	1.54303	1219.1736
$\frac{1}{32}$	1.54099	1207.7435	1.54203	1213.5425	1.54307	1219.3555
$\frac{1}{16}$	1.54102	1207.9245	1.54206	1213.7240	1.54310	1219.5374
$\frac{3}{32}$	1.54105	1208.1055	1.54209	1213.9054	1.54313	1219.7192
$\frac{1}{8}$	1.54108	1208.2866	1.54212	1214.0869	1.54316	1219.9012
$\frac{5}{32}$	1.54112	1208.4676	1.54216	1214.2684	1.54319	1220.0831
$\frac{3}{16}$	1.54115	1208.6487	1.54219	1214.4499	1.54323	1220.2650
$\frac{7}{32}$	1.54118	1208.8298	1.54222	1214.6314	1.54326	1220.4469
$\frac{1}{4}$	1.54122	1209.0109	1.54225	1214.8129	1.54329	1220.6289
$\frac{9}{32}$	1.54125	1209.1920	1.54229	1214.9945	1.54332	1220.8109
$\frac{5}{16}$	1.54128	1209.3731	1.54232	1215.1760	1.54336	1220.9929
$\frac{11}{32}$	1.54131	1209.5542	1.54235	1215.3576	1.54339	1221.1749
$\frac{3}{8}$	1.54135	1209.7354	1.54238	1215.5392	1.54342	1221.3569
$\frac{13}{32}$	1.54138	1209.9165	1.54242	1215.7208	1.54345	1221.5389
$\frac{7}{16}$	1.54141	1210.0977	1.54245	1215.9024	1.54349	1221.7209
$\frac{15}{32}$	1.54144	1210.2789	1.54248	1216.0840	1.54352	1221.9030
$\frac{1}{2}$	1.54148	1210.4601	1.54251	1216.2656	1.54355	1222.0851
$\frac{17}{32}$	1.54151	1210.6413	1.54255	1216.4473	1.54358	1222.2672
$\frac{9}{16}$	1.54154	1210.8225	1.54258	1216.6289	1.54362	1222.4492
$\frac{19}{32}$	1.54157	1211.0038	1.54261	1216.8106	1.54365	1222.6314
$\frac{5}{8}$	1.54161	1211.1850	1.54264	1216.9923	1.54368	1222.8135
$\frac{21}{32}$	1.54164	1211.3663	1.54268	1217.1740	1.54371	1222.9956
$\frac{11}{16}$	1.54167	1211.5476	1.54271	1217.3557	1.54374	1223.1778
$\frac{23}{32}$	1.54170	1211.7288	1.54274	1217.5374	1.54378	1223.3599
$\frac{3}{4}$	1.54174	1211.9102	1.54277	1217.7192	1.54381	1223.5421
$\frac{25}{32}$	1.54177	1212.0915	1.54281	1217.9009	1.54384	1223.7243
$\frac{13}{16}$	1.54180	1212.2728	1.54284	1218.0827	1.54387	1223.9065
$\frac{27}{32}$	1.54183	1212.4542	1.54287	1218.2645	1.54391	1224.0887
$\frac{7}{8}$	1.54187	1212.6355	1.54290	1218.4463	1.54394	1224.2709
$\frac{29}{32}$	1.54190	1212.8169	1.54294	1218.6281	1.54397	1224.4532
$\frac{15}{16}$	1.54193	1212.9983	1.54297	1218.8099	1.54400	1224.6354
$\frac{31}{32}$	1.54196	1213.1797	1.54300	1218.9918	1.54404	1224.8177
1	1.54200	1213.3611	1.54303	1219.1736	1.54407	1225.0000

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.54407	1225.0000	1.54510	1230.8403	1.54613	1236.6944
$\frac{1}{32}$	1.54410	1225.1823	1.54513	1231.0230	1.54616	1236.8776
$\frac{1}{16}$	1.54413	1225.3646	1.54517	1231.2058	1.54620	1237.0608
$\frac{3}{32}$	1.54416	1225.5469	1.54520	1231.3885	1.54623	1237.2440
$\frac{1}{8}$	1.54420	1225.7293	1.54523	1231.5713	1.54626	1237.4272
$\frac{5}{32}$	1.54423	1225.9116	1.54526	1231.7541	1.54629	1237.6104
$\frac{3}{16}$	1.54426	1226.0940	1.54529	1231.9369	1.54632	1237.7936
$\frac{7}{32}$	1.54429	1226.2764	1.54533	1232.1197	1.54636	1237.9769
$\frac{1}{4}$	1.54433	1226.4588	1.54536	1232.3025	1.54639	1238.1602
$\frac{9}{32}$	1.54436	1226.6412	1.54539	1232.4854	1.54642	1238.3434
$\frac{5}{16}$	1.54439	1226.8236	1.54542	1232.6682	1.54645	1238.5267
$\frac{11}{32}$	1.54442	1227.0060	1.54546	1232.8511	1.54648	1238.7100
$\frac{3}{8}$	1.54446	1227.1885	1.54549	1233.0340	1.54652	1238.8933
$\frac{13}{32}$	1.54449	1227.3709	1.54552	1233.2169	1.54655	1239.0767
$\frac{7}{16}$	1.54452	1227.5534	1.54555	1233.3998	1.54658	1239.2600
$\frac{15}{32}$	1.54455	1227.7359	1.54558	1233.5827	1.54661	1239.4434
$\frac{1}{2}$	1.54458	1227.9184	1.54562	1233.7656	1.54665	1239.6267
$\frac{17}{32}$	1.54462	1228.1009	1.54565	1233.9486	1.54668	1239.8101
$\frac{9}{16}$	1.54465	1228.2834	1.54568	1234.1315	1.54671	1239.9935
$\frac{19}{32}$	1.54468	1228.4660	1.54571	1234.3145	1.54674	1240.1769
$\frac{5}{8}$	1.54471	1228.6485	1.54575	1234.4975	1.54677	1240.3604
$\frac{21}{32}$	1.54475	1228.8311	1.54578	1234.6805	1.54681	1240.5438
$\frac{11}{16}$	1.54478	1229.0137	1.54581	1234.8635	1.54684	1240.7272
$\frac{23}{32}$	1.54481	1229.1963	1.54584	1235.0466	1.54687	1240.9107
$\frac{3}{4}$	1.54484	1229.3789	1.54587	1235.2296	1.54690	1241.0942
$\frac{25}{32}$	1.54488	1229.5615	1.54591	1235.4127	1.54693	1241.2777
$\frac{13}{16}$	1.54491	1229.7442	1.54594	1235.5957	1.54697	1241.4612
$\frac{27}{32}$	1.54494	1229.9268	1.54597	1235.7788	1.54700	1241.6447
$\frac{7}{8}$	1.54497	1230.1095	1.54600	1235.9619	1.54703	1241.8282
$\frac{29}{32}$	1.54500	1230.2922	1.54603	1236.1450	1.54706	1242.0118
$\frac{15}{16}$	1.54504	1230.4749	1.54607	1236.3282	1.54709	1242.1953
$\frac{31}{32}$	1.54507	1230.6576	1.54610	1236.5113	1.54713	1242.3789
1	1.54510	1230.8403	1.54613	1236.6944	1.54716	1242.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.54716	1242.5625	1.54818	1248.4444	1.54921	1254.3403
$\frac{1}{32}$	1.54719	1242.7461	1.54822	1248.6285	1.54924	1254.5247
$\frac{1}{16}$	1.54722	1242.9297	1.54825	1248.8125	1.54927	1254.7092
$\frac{3}{32}$	1.54726	1243.1133	1.54828	1248.9966	1.54930	1254.8937
$\frac{1}{8}$	1.54729	1243.2970	1.54831	1249.1807	1.54934	1255.0782
$\frac{5}{32}$	1.54732	1243.4806	1.54834	1249.3648	1.54937	1255.2628
$\frac{3}{16}$	1.54735	1243.6643	1.54838	1249.5489	1.54940	1255.4473
$\frac{7}{32}$	1.54738	1243.8480	1.54841	1249.7330	1.54943	1255.6318
$\frac{1}{4}$	1.54742	1244.0317	1.54844	1249.9171	1.54946	1255.8164
$\frac{9}{32}$	1.54745	1244.2154	1.54847	1250.1012	1.54949	1256.0010
$\frac{5}{16}$	1.54748	1244.3991	1.54850	1250.2854	1.54953	1256.1856
$\frac{11}{32}$	1.54751	1244.5829	1.54854	1250.4696	1.54956	1256.3702
$\frac{3}{8}$	1.54754	1244.7666	1.54857	1250.6538	1.54959	1256.5548
$\frac{13}{32}$	1.54758	1244.9504	1.54860	1250.8380	1.54962	1256.7394
$\frac{7}{16}$	1.54761	1245.1341	1.54863	1251.0222	1.54965	1256.9241
$\frac{15}{32}$	1.54764	1245.3179	1.54866	1251.2064	1.54969	1257.1087
$\frac{1}{2}$	1.54767	1245.5017	1.54870	1251.3906	1.54972	1257.2934
$\frac{17}{32}$	1.54770	1245.6856	1.54873	1251.5749	1.54975	1257.4781
$\frac{9}{16}$	1.54774	1245.8694	1.54876	1251.7591	1.54978	1257.6628
$\frac{19}{32}$	1.54777	1246.0532	1.54879	1251.9434	1.54981	1257.8475
$\frac{5}{8}$	1.54780	1246.2371	1.54882	1252.1277	1.54985	1258.0322
$\frac{21}{32}$	1.54783	1246.4210	1.54886	1252.3120	1.54988	1258.2170
$\frac{11}{16}$	1.54786	1246.6048	1.54889	1252.4963	1.54991	1258.4017
$\frac{23}{32}$	1.54790	1246.7887	1.54892	1252.6807	1.54994	1258.5865
$\frac{3}{4}$	1.54793	1246.9727	1.54895	1252.8650	1.54997	1258.7713
$\frac{25}{32}$	1.54796	1247.1566	1.54898	1253.0494	1.55001	1258.9561
$\frac{13}{16}$	1.54799	1247.3405	1.54902	1253.2338	1.55004	1259.1409
$\frac{27}{32}$	1.54802	1247.5245	1.54905	1253.4181	1.55007	1259.3257
$\frac{7}{8}$	1.54806	1247.7084	1.54908	1253.6025	1.55010	1259.5105
$\frac{29}{32}$	1.54809	1247.8924	1.54911	1253.7870	1.55013	1259.6954
$\frac{15}{16}$	1.54812	1248.0764	1.54914	1253.9714	1.55016	1259.8802
$\frac{31}{32}$	1.54815	1248.2604	1.54918	1254.1558	1.55020	1260.0651
1	1.54818	1248.4444	1.54921	1254.3403	1.55023	1260.2500



Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.55023	1260.2500	1.55125	1266.1736	1.55226	1272.1111
$\frac{1}{32}$	1.55026	1260.4349	1.55128	1266.3589	1.55229	1272.2969
$\frac{1}{16}$	1.55029	1260.6198	1.55131	1266.5443	1.55233	1272.4827
$\frac{3}{32}$	1.55032	1260.8047	1.55134	1266.7297	1.55236	1272.6685
$\frac{1}{8}$	1.55036	1260.9897	1.55137	1266.9150	1.55239	1272.8543
$\frac{5}{32}$	1.55039	1261.1746	1.55141	1267.1004	1.55242	1273.0401
$\frac{3}{16}$	1.55042	1261.3596	1.55144	1267.2858	1.55245	1273.2259
$\frac{7}{32}$	1.55045	1261.5446	1.55147	1267.4713	1.55248	1273.4118
$\frac{1}{4}$	1.55048	1261.7296	1.55150	1267.6567	1.55252	1273.5977
$\frac{9}{32}$	1.55051	1261.9146	1.55153	1267.8421	1.55255	1273.7835
$\frac{5}{16}$	1.55055	1262.0996	1.55156	1268.0276	1.55258	1273.9694
$\frac{11}{32}$	1.55058	1262.2847	1.55160	1268.2131	1.55261	1274.1553
$\frac{3}{8}$	1.55061	1262.4697	1.55163	1268.3985	1.55264	1274.3413
$\frac{13}{32}$	1.55064	1262.6548	1.55166	1268.5840	1.55267	1274.5272
$\frac{7}{16}$	1.55067	1262.8399	1.55169	1268.7696	1.55271	1274.7131
$\frac{15}{32}$	1.55071	1263.0250	1.55172	1268.9551	1.55274	1274.8991
$\frac{1}{2}$	1.55074	1263.2101	1.55175	1269.1406	1.55277	1275.0851
$\frac{17}{32}$	1.55077	1263.3952	1.55179	1269.3262	1.55280	1275.2711
$\frac{9}{16}$	1.55080	1263.5803	1.55182	1269.5117	1.55283	1275.4571
$\frac{19}{32}$	1.55083	1263.7655	1.55185	1269.6973	1.55286	1275.6431
$\frac{5}{8}$	1.55087	1263.9506	1.55188	1269.8829	1.55290	1275.8291
$\frac{21}{32}$	1.55090	1264.1358	1.55191	1270.0685	1.55293	1276.0151
$\frac{11}{16}$	1.55093	1264.3210	1.55195	1270.2542	1.55296	1276.2012
$\frac{23}{32}$	1.55096	1264.5062	1.55198	1270.4398	1.55299	1276.3873
$\frac{3}{4}$	1.55099	1264.6914	1.55201	1270.6254	1.55302	1276.5734
$\frac{25}{32}$	1.55102	1264.8766	1.55204	1270.8111	1.55305	1276.7594
$\frac{13}{16}$	1.55106	1265.0619	1.55207	1270.9968	1.55309	1276.9456
$\frac{27}{32}$	1.55109	1265.2471	1.55210	1271.1825	1.55312	1277.1317
$\frac{7}{8}$	1.55112	1265.4324	1.55214	1271.3682	1.55315	1277.3178
$\frac{29}{32}$	1.55115	1265.6177	1.55217	1271.5539	1.55318	1277.5040
$\frac{15}{16}$	1.55118	1265.8030	1.55220	1271.7396	1.55321	1277.6901
$\frac{31}{32}$	1.55121	1265.9883	1.55223	1271.9254	1.55324	1277.8763
1	1.55125	1266.1736	1.55226	1272.1111	1.55328	1278.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.55328	1278.0625	1.55429	1284.0278	1.55530	1290.0069
$\frac{1}{32}$	1.55331	1278.2497	1.55432	1284.2144	1.55533	1290.1940
$\frac{1}{16}$	1.55334	1278.4349	1.55435	1284.4011	1.55536	1290.3811
$\frac{3}{32}$	1.55337	1278.6212	1.55438	1284.5877	1.55539	1290.5682
$\frac{1}{8}$	1.55340	1278.8074	1.55441	1284.7744	1.55542	1290.7553
$\frac{5}{32}$	1.55343	1278.9937	1.55444	1284.9611	1.55545	1290.9424
$\frac{3}{16}$	1.55347	1279.1799	1.55448	1285.1478	1.55548	1291.1296
$\frac{7}{32}$	1.55350	1279.3662	1.55451	1285.3345	1.55552	1291.3167
$\frac{1}{4}$	1.55353	1279.5525	1.55454	1285.5213	1.55555	1291.5039
$\frac{9}{32}$	1.55356	1279.7388	1.55457	1285.7080	1.55558	1291.6911
$\frac{5}{16}$	1.55359	1279.9252	1.55460	1285.8948	1.55561	1291.8783
$\frac{11}{32}$	1.55362	1280.1115	1.55463	1286.0815	1.55564	1292.0655
$\frac{3}{8}$	1.55366	1280.2979	1.55467	1286.2683	1.55567	1292.2527
$\frac{13}{32}$	1.55369	1280.4842	1.55470	1286.4551	1.55571	1292.4399
$\frac{7}{16}$	1.55372	1280.6706	1.55473	1286.6420	1.55574	1292.6272
$\frac{15}{32}$	1.55375	1280.8570	1.55476	1286.8288	1.55577	1292.8145
$\frac{1}{2}$	1.55378	1281.0434	1.55479	1287.0156	1.55580	1293.0017
$\frac{17}{32}$	1.55381	1281.2298	1.55482	1287.2025	1.55583	1293.1890
$\frac{9}{16}$	1.55385	1281.4163	1.55485	1287.3894	1.55586	1293.3763
$\frac{19}{32}$	1.55388	1281.6027	1.55489	1287.5762	1.55589	1293.5636
$\frac{5}{8}$	1.55391	1281.7892	1.55492	1287.7631	1.55593	1293.7510
$\frac{21}{32}$	1.55394	1281.9756	1.55495	1287.9500	1.55596	1293.9383
$\frac{11}{16}$	1.55397	1282.1621	1.55498	1288.1370	1.55599	1294.1257
$\frac{23}{32}$	1.55400	1282.3486	1.55501	1288.3239	1.55602	1294.3130
$\frac{3}{4}$	1.55403	1282.5352	1.55504	1288.5109	1.55605	1294.5004
$\frac{25}{32}$	1.55407	1282.7217	1.55508	1288.6978	1.55608	1294.6878
$\frac{13}{16}$	1.55410	1282.9082	1.55511	1288.8848	1.55611	1294.8752
$\frac{27}{32}$	1.55413	1283.0948	1.55514	1289.0718	1.55615	1295.0627
$\frac{7}{8}$	1.55416	1283.2814	1.55517	1289.2588	1.55618	1295.2501
$\frac{29}{32}$	1.55419	1283.4679	1.55520	1289.4456	1.55621	1295.4376
$\frac{15}{16}$	1.55422	1283.6545	1.55523	1289.6328	1.55624	1295.6250
$\frac{31}{32}$	1.55426	1283.8412	1.55526	1289.8199	1.55627	1295.8125
1	1.55429	1284.0278	1.55530	1290.0069	1.55630	1296.0000

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.55630	1296.0000	1.55731	1302.0069	1.55831	1308.0278
$\frac{1}{32}$	1.55633	1296.1875	1.55734	1302.1949	1.55834	1308.2162
$\frac{1}{16}$	1.55637	1296.3750	1.55737	1302.3828	1.55837	1308.4045
$\frac{3}{32}$	1.55640	1296.5626	1.55740	1302.5708	1.55840	1308.5929
$\frac{1}{8}$	1.55643	1296.7501	1.55743	1302.7588	1.55843	1308.7814
$\frac{5}{32}$	1.55646	1296.9377	1.55746	1302.9468	1.55846	1308.9698
$\frac{3}{16}$	1.55649	1297.1252	1.55749	1303.1348	1.55850	1309.1582
$\frac{7}{32}$	1.55652	1297.3128	1.55753	1303.3228	1.55853	1309.3467
$\frac{1}{4}$	1.55655	1297.5004	1.55756	1303.5109	1.55856	1309.5352
$\frac{9}{32}$	1.55659	1297.6880	1.55759	1303.6989	1.55859	1309.7236
$\frac{5}{16}$	1.55662	1297.8757	1.55762	1303.8870	1.55862	1309.9121
$\frac{11}{32}$	1.55665	1298.0633	1.55765	1304.0750	1.55865	1310.1006
$\frac{3}{8}$	1.55668	1298.2510	1.55768	1304.2631	1.55868	1310.2892
$\frac{13}{32}$	1.55671	1298.4386	1.55771	1304.4512	1.55871	1310.4777
$\frac{7}{16}$	1.55674	1298.6263	1.55775	1304.6393	1.55875	1310.6663
$\frac{15}{32}$	1.55677	1298.8140	1.55778	1304.8275	1.55878	1310.8548
$\frac{1}{2}$	1.55680	1299.0017	1.55781	1305.0156	1.55881	1311.0434
$\frac{17}{32}$	1.55684	1299.1895	1.55784	1305.2038	1.55884	1311.2320
$\frac{9}{16}$	1.55687	1299.3772	1.55787	1305.3920	1.55887	1311.4206
$\frac{19}{32}$	1.55690	1299.5649	1.55790	1305.5801	1.55890	1311.6092
$\frac{5}{8}$	1.55693	1299.7527	1.55793	1305.7683	1.55893	1311.7979
$\frac{21}{32}$	1.55696	1299.9405	1.55796	1305.9565	1.55896	1311.9865
$\frac{11}{16}$	1.55699	1300.1283	1.55800	1306.1448	1.55900	1312.1752
$\frac{23}{32}$	1.55702	1300.3161	1.55803	1306.3330	1.55903	1312.3638
$\frac{3}{4}$	1.55706	1300.5039	1.55806	1306.5213	1.55906	1312.5525
$\frac{25}{32}$	1.55709	1300.6917	1.55809	1306.7095	1.55909	1312.7412
$\frac{13}{16}$	1.55712	1300.8796	1.55812	1306.8978	1.55912	1312.9299
$\frac{27}{32}$	1.55715	1301.0674	1.55815	1307.0861	1.55915	1313.1187
$\frac{7}{8}$	1.55718	1301.2553	1.55818	1307.2744	1.55918	1313.3074
$\frac{29}{32}$	1.55721	1301.4432	1.55821	1307.4627	1.55921	1313.4962
$\frac{15}{16}$	1.55724	1301.6311	1.55825	1307.6511	1.55925	1313.6849
$\frac{31}{32}$	1.55728	1301.8190	1.55828	1307.8394	1.55928	1313.8737
1	1.55731	1302.0069	1.55831	1308.0278	1.55931	1314.0625

# 36'

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.55931	1314.0625	1.56031	1320.1111	1.56130	1326.1736
$\frac{1}{32}$	1.55934	1314.2513	1.56034	1320.3004	1.56133	1326.3633
$\frac{1}{16}$	1.55937	1314.4401	1.56037	1320.4896	1.56136	1326.5530
$\frac{3}{32}$	1.55940	1314.6290	1.56040	1320.6789	1.56139	1326.7427
$\frac{1}{8}$	1.55943	1314.8178	1.56043	1320.8682	1.56142	1326.9324
$\frac{5}{32}$	1.55946	1315.0067	1.56046	1321.0575	1.56146	1327.1221
$\frac{3}{16}$	1.55950	1315.1956	1.56049	1321.2468	1.56149	1327.3119
$\frac{7}{32}$	1.55953	1315.3844	1.56052	1321.4361	1.56152	1327.5016
$\frac{1}{4}$	1.55956	1315.5734	1.56055	1321.6254	1.56155	1327.6914
$\frac{9}{32}$	1.55959	1315.7623	1.56059	1321.8148	1.56158	1327.8812
$\frac{5}{16}$	1.55962	1315.9512	1.56062	1322.0042	1.56161	1328.0710
$\frac{11}{32}$	1.55965	1316.1401	1.56065	1322.1935	1.56164	1328.2608
$\frac{3}{8}$	1.55968	1316.3291	1.56068	1322.3829	1.56167	1328.4506
$\frac{13}{32}$	1.55971	1316.5181	1.56071	1322.5723	1.56170	1328.6405
$\frac{7}{16}$	1.55974	1316.7071	1.56074	1322.7617	1.56173	1328.8303
$\frac{15}{32}$	1.55978	1316.8961	1.56077	1322.9512	1.56177	1329.0202
$\frac{1}{2}$	1.55981	1317.0851	1.56080	1323.1406	1.56180	1329.2101
$\frac{17}{32}$	1.55984	1317.2741	1.56083	1323.3301	1.56183	1329.4000
$\frac{9}{16}$	1.55987	1317.4631	1.56087	1323.5196	1.56186	1329.5899
$\frac{19}{32}$	1.55990	1317.6522	1.56090	1323.7090	1.56189	1329.7798
$\frac{5}{8}$	1.55993	1317.8413	1.56093	1323.8985	1.56192	1329.9697
$\frac{21}{32}$	1.55996	1318.0303	1.56096	1324.0881	1.56195	1330.1597
$\frac{11}{16}$	1.55999	1318.2194	1.56099	1324.2776	1.56198	1330.3496
$\frac{23}{32}$	1.56003	1318.4085	1.56102	1324.4671	1.56201	1330.5396
$\frac{3}{4}$	1.56006	1318.5977	1.56105	1324.6567	1.56204	1330.7296
$\frac{25}{32}$	1.56009	1318.7868	1.56108	1324.8463	1.56208	1330.9196
$\frac{13}{16}$	1.56012	1318.9759	1.56111	1325.0358	1.56211	1331.1096
$\frac{27}{32}$	1.56015	1319.1651	1.56114	1325.2254	1.56214	1331.2996
$\frac{7}{8}$	1.56018	1319.3543	1.56118	1325.4150	1.56217	1331.4897
$\frac{29}{32}$	1.56021	1319.5435	1.56121	1325.6047	1.56220	1331.6797
$\frac{15}{16}$	1.56024	1319.7327	1.56124	1325.7943	1.56223	1331.8698
$\frac{31}{32}$	1.56027	1319.9219	1.56127	1325.9839	1.56226	1332.0599
1	1.56031	1320.1111	1.56130	1326.1736	1.56229	1332.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.56229	1332.2500	1.56328	1338.3403	1.56427	1344.4444
$\frac{1}{32}$	1.56232	1332.4401	1.56331	1338.5308	1.56430	1344.6354
$\frac{1}{16}$	1.56235	1332.6302	1.56335	1338.7214	1.56433	1344.8264
$\frac{3}{32}$	1.56239	1332.8204	1.56338	1338.9120	1.56436	1345.0174
$\frac{1}{8}$	1.56242	1333.0105	1.56341	1339.1025	1.56439	1345.2084
$\frac{5}{32}$	1.56245	1333.2007	1.56344	1339.2931	1.56443	1345.3995
$\frac{3}{16}$	1.56248	1333.3909	1.56347	1339.4838	1.56446	1345.5905
$\frac{7}{32}$	1.56251	1333.5811	1.56350	1339.6744	1.56449	1345.7816
$\frac{1}{4}$	1.56254	1333.7713	1.56353	1339.8650	1.56452	1345.9727
$\frac{9}{32}$	1.56257	1333.9615	1.56356	1340.0557	1.56455	1346.1637
$\frac{5}{16}$	1.56260	1334.1517	1.56359	1340.2463	1.56458	1346.3548
$\frac{11}{32}$	1.56263	1334.3420	1.56362	1340.4370	1.56461	1346.5460
$\frac{3}{8}$	1.56266	1334.5322	1.56365	1340.6277	1.56464	1346.7371
$\frac{13}{32}$	1.56270	1334.7225	1.56368	1340.8184	1.56467	1346.9282
$\frac{7}{16}$	1.56273	1334.9128	1.56372	1341.0091	1.56470	1347.1194
$\frac{15}{32}$	1.56276	1335.1031	1.56375	1341.1999	1.56473	1347.3106
$\frac{1}{2}$	1.56279	1335.2934	1.56378	1341.3906	1.56476	1347.5017
$\frac{17}{32}$	1.56282	1335.4837	1.56381	1341.5814	1.56480	1347.6929
$\frac{9}{16}$	1.56285	1335.6741	1.56384	1341.7722	1.56483	1347.8841
$\frac{19}{32}$	1.56288	1335.8644	1.56387	1341.9630	1.56486	1348.0754
$\frac{5}{8}$	1.56291	1336.0548	1.56390	1342.1538	1.56489	1348.2666
$\frac{21}{32}$	1.56294	1336.2452	1.56393	1342.3446	1.56492	1348.4579
$\frac{11}{16}$	1.56297	1336.4356	1.56396	1342.5354	1.56495	1348.6491
$\frac{23}{32}$	1.56300	1336.6260	1.56399	1342.7262	1.56498	1348.8404
$\frac{3}{4}$	1.56304	1336.8164	1.56402	1342.9171	1.56501	1349.0317
$\frac{25}{32}$	1.56307	1337.0068	1.56406	1343.1080	1.56504	1349.2230
$\frac{13}{16}$	1.56310	1337.1973	1.56409	1343.2989	1.56507	1349.4143
$\frac{27}{32}$	1.56313	1337.3878	1.56412	1343.4898	1.56510	1349.6056
$\frac{7}{8}$	1.56316	1337.5782	1.56415	1343.6807	1.56513	1349.7970
$\frac{29}{32}$	1.56319	1337.7687	1.56418	1343.8716	1.56517	1349.9883
$\frac{15}{16}$	1.56322	1337.9592	1.56421	1344.0625	1.56520	1350.1797
$\frac{31}{32}$	1.56325	1338.1497	1.56424	1344.2535	1.56523	1350.3711
1	1.56328	1338.3403	1.56427	1344.4444	1.56526	1350.5625

# 36'

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.56526	1350.5625	1.56624	1356.6944	1.56722	1362.8403
$\frac{1}{32}$	1.56529	1350.7539	1.56627	1356.8863	1.56725	1363.0326
$\frac{1}{16}$	1.56532	1350.9453	1.56630	1357.0782	1.56728	1363.2249
$\frac{3}{32}$	1.56535	1351.1368	1.56633	1357.2700	1.56731	1363.4172
$\frac{1}{8}$	1.56538	1351.3282	1.56636	1357.4619	1.56735	1363.6095
$\frac{5}{32}$	1.56541	1351.5197	1.56639	1357.6538	1.56738	1363.8018
$\frac{3}{16}$	1.56544	1351.7112	1.56643	1357.8457	1.56741	1363.9942
$\frac{7}{32}$	1.56547	1351.9027	1.56646	1358.0377	1.56744	1364.1865
$\frac{1}{4}$	1.56550	1352.0942	1.56649	1358.2296	1.56747	1364.3789
$\frac{9}{32}$	1.56553	1352.2857	1.56652	1358.4216	1.56750	1364.5713
$\frac{5}{16}$	1.56556	1352.4772	1.56655	1358.6135	1.56753	1364.7637
$\frac{11}{32}$	1.56559	1352.6688	1.56658	1358.8055	1.56756	1364.9561
$\frac{3}{8}$	1.56563	1352.8604	1.56661	1358.9975	1.56759	1365.1485
$\frac{13}{32}$	1.56566	1353.0519	1.56664	1359.1895	1.56762	1365.3410
$\frac{7}{16}$	1.56569	1353.2435	1.56667	1359.3815	1.56765	1365.5334
$\frac{15}{32}$	1.56572	1353.4351	1.56670	1359.5736	1.56768	1365.7259
$\frac{1}{2}$	1.56575	1353.6267	1.56673	1359.7656	1.56771	1365.9184
$\frac{17}{32}$	1.56578	1353.8184	1.56676	1359.9577	1.56774	1366.1109
$\frac{9}{16}$	1.56581	1354.0100	1.56679	1360.1498	1.56777	1366.3034
$\frac{19}{32}$	1.56584	1354.2017	1.56682	1360.3419	1.56780	1366.4959
$\frac{5}{8}$	1.56587	1354.3933	1.56685	1360.5340	1.56783	1366.6885
$\frac{21}{32}$	1.56590	1354.5850	1.56689	1360.7261	1.56787	1366.8810
$\frac{11}{16}$	1.56593	1354.7767	1.56692	1360.9182	1.56790	1367.0736
$\frac{23}{32}$	1.56596	1354.9684	1.56695	1361.1104	1.56793	1367.2662
$\frac{3}{4}$	1.56600	1355.1602	1.56698	1361.3025	1.56796	1367.4588
$\frac{25}{32}$	1.56603	1355.3519	1.56701	1361.4947	1.56799	1367.6514
$\frac{13}{16}$	1.56606	1355.5436	1.56704	1361.6869	1.56802	1367.8440
$\frac{27}{32}$	1.56609	1355.7354	1.56707	1361.8791	1.56805	1368.0366
$\frac{7}{8}$	1.56612	1355.9272	1.56710	1362.0713	1.56808	1368.2293
$\frac{29}{32}$	1.56615	1356.1190	1.56713	1362.2635	1.56811	1368.4219
$\frac{15}{16}$	1.56618	1356.3108	1.56716	1362.4558	1.56814	1368.6146
$\frac{31}{32}$	1.56621	1356.5026	1.56719	1362.6480	1.56817	1368.8073
1	1.56624	1356.6944	1.56722	1362.8403	1.56820	1369.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.56820	1369.0000	1.56918	1375.1736	1.57015	1381.3611
$\frac{1}{32}$	1.56823	1369.1927	1.56921	1375.3668	1.57018	1381.5547
$\frac{1}{16}$	1.56826	1369.3854	1.56924	1375.5599	1.57021	1381.7483
$\frac{3}{32}$	1.56829	1369.5782	1.56927	1375.7531	1.57024	1381.9419
$\frac{1}{8}$	1.56832	1369.7709	1.56930	1375.9463	1.57028	1382.1355
$\frac{5}{32}$	1.56835	1369.9637	1.56933	1376.1395	1.57031	1382.3292
$\frac{3}{16}$	1.56839	1370.1565	1.56936	1376.3327	1.57034	1382.5228
$\frac{7}{32}$	1.56842	1370.3493	1.56939	1376.5259	1.57037	1382.7165
$\frac{1}{4}$	1.56845	1370.5421	1.56942	1376.7192	1.57040	1382.9102
$\frac{9}{32}$	1.56848	1370.7349	1.56945	1376.9124	1.57043	1383.1038
$\frac{5}{16}$	1.56851	1370.9278	1.56948	1377.1057	1.57046	1383.2976
$\frac{11}{32}$	1.56854	1371.1206	1.56951	1377.2990	1.57049	1383.4913
$\frac{3}{8}$	1.56857	1371.3135	1.56954	1377.4923	1.57052	1383.6850
$\frac{13}{32}$	1.56860	1371.5064	1.56958	1377.6856	1.57055	1383.8788
$\frac{7}{16}$	1.56863	1371.6992	1.56961	1377.8789	1.57058	1384.0725
$\frac{15}{32}$	1.56866	1371.8922	1.56964	1378.0723	1.57061	1384.2663
$\frac{1}{2}$	1.56869	1372.0851	1.56967	1378.2656	1.57064	1384.4601
$\frac{17}{32}$	1.56872	1372.2780	1.56970	1378.4590	1.57067	1384.6539
$\frac{9}{16}$	1.56875	1372.4709	1.56973	1378.6524	1.57070	1384.8477
$\frac{19}{32}$	1.56878	1372.6639	1.56976	1378.8458	1.57073	1385.0415
$\frac{5}{8}$	1.56881	1372.8569	1.56979	1379.0392	1.57076	1385.2354
$\frac{21}{32}$	1.56884	1373.0499	1.56982	1379.2326	1.57079	1385.4292
$\frac{11}{16}$	1.56887	1373.2429	1.56985	1379.4260	1.57082	1385.6231
$\frac{23}{32}$	1.56890	1373.4359	1.56988	1379.6195	1.57085	1385.8170
$\frac{3}{4}$	1.56893	1373.6289	1.56991	1379.8129	1.57088	1386.0109
$\frac{25}{32}$	1.56897	1373.8219	1.56994	1380.0064	1.57091	1386.2048
$\frac{13}{16}$	1.56900	1374.0150	1.56997	1380.1999	1.57094	1386.3987
$\frac{27}{32}$	1.56903	1374.2081	1.57000	1380.3934	1.57097	1386.5926
$\frac{7}{8}$	1.56906	1374.4011	1.57003	1380.5869	1.57100	1386.7866
$\frac{29}{32}$	1.56909	1374.5942	1.57006	1380.7804	1.57104	1386.9805
$\frac{15}{16}$	1.56912	1374.7874	1.57009	1380.9740	1.57107	1387.1745
$\frac{31}{32}$	1.56915	1374.9805	1.57012	1381.1675	1.57110	1387.3685
1	1.56918	1375.1736	1.57015	1381.3611	1.57113	1387.5625

Fractions of an Inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.57113	1387.5625	1.57210	1393.7778	1.57307	1400.0069
$\frac{1}{32}$	1.57116	1387.7565	1.57213	1393.9722	1.57310	1400.2018
$\frac{1}{16}$	1.57119	1387.9505	1.57216	1394.1667	1.57313	1400.3967
$\frac{3}{32}$	1.57122	1388.1446	1.57219	1394.3612	1.57316	1400.5916
$\frac{1}{8}$	1.57125	1388.3387	1.57222	1394.5557	1.57319	1400.7866
$\frac{5}{32}$	1.57128	1388.5327	1.57225	1394.7502	1.57322	1400.9815
$\frac{3}{16}$	1.57131	1388.7268	1.57228	1394.9447	1.57325	1401.1765
$\frac{7}{32}$	1.57134	1388.9209	1.57231	1395.1392	1.57328	1401.3714
$\frac{1}{4}$	1.57137	1389.1150	1.57234	1395.3338	1.57331	1401.5664
$\frac{9}{32}$	1.57140	1389.3091	1.57237	1395.5283	1.57334	1401.7614
$\frac{5}{16}$	1.57143	1389.5033	1.57240	1395.7229	1.57337	1401.9564
$\frac{11}{32}$	1.57146	1389.6974	1.57243	1395.9175	1.57340	1402.1514
$\frac{3}{8}$	1.57149	1389.8916	1.57246	1396.1121	1.57343	1402.3465
$\frac{13}{32}$	1.57152	1390.0858	1.57249	1396.3067	1.57346	1402.5415
$\frac{7}{16}$	1.57155	1390.2800	1.57252	1396.5013	1.57349	1402.7366
$\frac{15}{32}$	1.57158	1390.4742	1.57255	1396.6960	1.57352	1402.9316
$\frac{1}{2}$	1.57161	1390.6684	1.57258	1396.8906	1.57355	1403.1267
$\frac{17}{32}$	1.57164	1390.8626	1.57261	1397.0853	1.57358	1403.3218
$\frac{9}{16}$	1.57167	1391.0569	1.57264	1397.2800	1.57361	1403.5170
$\frac{19}{32}$	1.57170	1391.2511	1.57267	1397.4747	1.57364	1403.7121
$\frac{5}{8}$	1.57173	1391.4454	1.57270	1397.6694	1.57367	1403.9072
$\frac{21}{32}$	1.57176	1391.6397	1.57273	1397.8641	1.57370	1404.1024
$\frac{11}{16}$	1.57179	1391.8340	1.57276	1398.0588	1.57373	1404.2976
$\frac{23}{32}$	1.57182	1392.0283	1.57279	1398.2536	1.57376	1404.4927
$\frac{3}{4}$	1.57185	1392.2227	1.57282	1398.4484	1.57379	1404.6879
$\frac{25}{32}$	1.57188	1392.4170	1.57285	1398.6431	1.57382	1404.8831
$\frac{13}{16}$	1.57191	1392.6114	1.57288	1398.8379	1.57385	1405.0784
$\frac{27}{32}$	1.57195	1392.8057	1.57291	1399.0327	1.57388	1405.2736
$\frac{7}{8}$	1.57198	1393.0001	1.57294	1399.2275	1.57391	1405.4689
$\frac{29}{32}$	1.57201	1393.1945	1.57297	1399.4224	1.57394	1405.6641
$\frac{15}{16}$	1.57204	1393.3889	1.57300	1399.6172	1.57397	1405.8594
$\frac{31}{32}$	1.57207	1393.5833	1.57303	1399.8121	1.57400	1406.0547
1	1.57210	1393.7778	1.57307	1400.0069	1.57403	1406.2500



Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.57403	1406.2500	1.57500	1412.5069	1.57596	1418.7778
$\frac{1}{32}$	1.57406	1406.4453	1.57503	1412.7027	1.57599	1418.9740
$\frac{1}{16}$	1.57409	1406.6407	1.57506	1412.8985	1.57602	1419.1702
$\frac{3}{32}$	1.57412	1406.8360	1.57509	1413.0942	1.57605	1419.3664
$\frac{1}{8}$	1.57415	1407.0314	1.57512	1413.2900	1.57608	1419.5626
$\frac{5}{32}$	1.57418	1407.2267	1.57515	1413.4858	1.57611	1419.7589
$\frac{3}{16}$	1.57421	1407.4221	1.57518	1413.6817	1.57614	1419.9551
$\frac{7}{32}$	1.57424	1407.6175	1.57521	1413.8775	1.57617	1420.1514
$\frac{1}{4}$	1.57427	1407.8129	1.57524	1414.0734	1.57620	1420.3477
$\frac{9}{32}$	1.57430	1408.0084	1.57527	1414.2692	1.57623	1420.5440
$\frac{5}{16}$	1.57433	1408.2038	1.57530	1414.4651	1.57626	1420.7403
$\frac{11}{32}$	1.57436	1408.3993	1.57533	1414.6610	1.57629	1420.9366
$\frac{3}{8}$	1.57439	1408.5947	1.57536	1414.8569	1.57632	1421.1329
$\frac{13}{32}$	1.57442	1408.7902	1.57539	1415.0528	1.57635	1421.3293
$\frac{7}{16}$	1.57445	1408.9857	1.57542	1415.2487	1.57638	1421.5256
$\frac{15}{32}$	1.57448	1409.1812	1.57545	1415.4447	1.57641	1421.7220
$\frac{1}{2}$	1.57451	1409.3767	1.57548	1415.6406	1.57644	1421.9184
$\frac{17}{32}$	1.57454	1409.5723	1.57551	1415.8366	1.57647	1422.1148
$\frac{9}{16}$	1.57457	1409.7678	1.57554	1416.0326	1.57650	1422.3112
$\frac{19}{32}$	1.57460	1409.9634	1.57557	1416.2286	1.57653	1422.5077
$\frac{5}{8}$	1.57463	1410.1590	1.57560	1416.4246	1.57656	1422.7041
$\frac{21}{32}$	1.57466	1410.3546	1.57563	1416.6206	1.57659	1422.9006
$\frac{11}{16}$	1.57469	1410.5502	1.57566	1416.8167	1.57662	1423.0970
$\frac{23}{32}$	1.57472	1410.7458	1.57569	1417.0127	1.57665	1423.2935
$\frac{3}{4}$	1.57475	1410.9414	1.57572	1417.2088	1.57668	1423.4900
$\frac{25}{32}$	1.57478	1411.1371	1.57575	1417.4048	1.57671	1423.6865
$\frac{13}{16}$	1.57481	1411.3327	1.57578	1417.6009	1.57674	1423.8831
$\frac{27}{32}$	1.57484	1411.5284	1.57581	1417.7970	1.57677	1424.0796
$\frac{3}{4}$	1.57487	1411.7241	1.57584	1417.9932	1.57680	1424.2762
$\frac{29}{32}$	1.57491	1411.9198	1.57587	1418.1893	1.57683	1424.4727
$\frac{15}{16}$	1.57494	1412.1155	1.57590	1418.3854	1.57686	1424.6693
$\frac{31}{32}$	1.57497	1412.3112	1.57593	1418.5816	1.57689	1424.8659
1	1.57500	1412.5069	1.57596	1418.7778	1.57692	1425.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.57692	1425.0625	1.57787	1431.3611	1.57883	1437.6736
$\frac{1}{32}$	1.57695	1425.2591	1.57790	1431.5582	1.57886	1437.8711
$\frac{1}{16}$	1.57698	1425.4558	1.57793	1431.7552	1.57889	1438.0686
$\frac{3}{32}$	1.57701	1425.6524	1.57796	1431.9523	1.57892	1438.2661
$\frac{1}{8}$	1.57704	1425.8491	1.57799	1432.1494	1.57895	1438.4637
$\frac{5}{32}$	1.57707	1426.0457	1.57802	1432.3465	1.57898	1438.6612
$\frac{3}{16}$	1.57710	1426.2424	1.57805	1432.5436	1.57901	1438.8588
$\frac{7}{32}$	1.57713	1426.4391	1.57808	1432.7408	1.57904	1439.0563
$\frac{1}{4}$	1.57716	1426.6359	1.57811	1432.9379	1.57907	1439.2539
$\frac{9}{32}$	1.57719	1426.8326	1.57814	1433.1351	1.57910	1439.4515
$\frac{5}{16}$	1.57722	1427.0293	1.57817	1433.3323	1.57913	1439.6491
$\frac{11}{32}$	1.57725	1427.2261	1.57820	1433.5295	1.57916	1439.8467
$\frac{3}{8}$	1.57728	1427.4229	1.57823	1433.7267	1.57919	1440.0444
$\frac{13}{32}$	1.57731	1427.6196	1.57826	1433.9239	1.57922	1440.2420
$\frac{7}{16}$	1.57734	1427.8164	1.57829	1434.1211	1.57925	1440.4397
$\frac{15}{32}$	1.57737	1428.0132	1.57832	1434.3184	1.57928	1440.6374
$\frac{1}{2}$	1.57740	1428.2101	1.57835	1434.5156	1.57931	1440.8351
$\frac{17}{32}$	1.57743	1428.4069	1.57838	1434.7129	1.57934	1441.0328
$\frac{9}{16}$	1.57746	1428.6038	1.57841	1434.9102	1.57937	1441.2305
$\frac{19}{32}$	1.57749	1428.8006	1.57844	1435.1075	1.57940	1441.4282
$\frac{5}{8}$	1.57752	1428.9975	1.57847	1435.3048	1.57943	1441.6260
$\frac{21}{32}$	1.57755	1429.1944	1.57850	1435.5021	1.57946	1441.8237
$\frac{11}{16}$	1.57758	1429.3913	1.57853	1435.6995	1.57949	1442.0215
$\frac{23}{32}$	1.57761	1429.5882	1.57856	1435.8968	1.57952	1442.2193
$\frac{3}{4}$	1.57764	1429.7852	1.57859	1436.0942	1.57955	1442.4171
$\frac{25}{32}$	1.57767	1429.9821	1.57862	1436.2916	1.57958	1442.6149
$\frac{13}{16}$	1.57770	1430.1791	1.57865	1436.4890	1.57960	1442.8127
$\frac{27}{32}$	1.57773	1430.3760	1.57868	1436.6864	1.57963	1443.0106
$\frac{7}{8}$	1.57776	1430.5730	1.57871	1436.8838	1.57966	1443.2084
$\frac{29}{32}$	1.57778	1430.7700	1.57874	1437.0812	1.57969	1443.4063
$\frac{15}{16}$	1.57781	1430.9670	1.57877	1437.2787	1.57972	1443.6042
$\frac{31}{32}$	1.57784	1431.1641	1.57880	1437.4761	1.57975	1443.8021
1	1.57787	1431.3611	1.57883	1437.6736	1.57978	1444.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.57978	1444.0000	1.58073	1450.3403	1.58168	1456.6944
$\frac{1}{32}$	1.57981	1444.1979	1.58076	1450.5386	1.58171	1456.8932
$\frac{1}{16}$	1.57984	1444.3959	1.58079	1450.7370	1.58174	1457.0920
$\frac{3}{32}$	1.57987	1444.5938	1.58082	1450.9354	1.58177	1457.2909
$\frac{1}{8}$	1.57990	1444.7918	1.58085	1451.1338	1.58180	1457.4897
$\frac{5}{32}$	1.57993	1444.9898	1.58088	1451.3322	1.58183	1457.6885
$\frac{3}{16}$	1.57996	1445.1877	1.58091	1451.5306	1.58186	1457.8874
$\frac{7}{32}$	1.57999	1445.3857	1.58094	1451.7291	1.58189	1458.0863
$\frac{1}{4}$	1.58002	1445.5838	1.58097	1451.9275	1.58192	1458.2852
$\frac{9}{32}$	1.58005	1445.7818	1.58100	1452.1260	1.58195	1458.4841
$\frac{5}{16}$	1.58008	1445.9798	1.58103	1452.3245	1.58198	1458.6830
$\frac{11}{32}$	1.58011	1446.1779	1.58106	1452.5230	1.58201	1458.8819
$\frac{3}{8}$	1.58014	1446.3760	1.58109	1452.7215	1.58204	1459.0808
$\frac{13}{32}$	1.58017	1446.5741	1.58112	1452.9200	1.58207	1459.2798
$\frac{7}{16}$	1.58020	1446.7722	1.58115	1453.1185	1.58210	1459.4788
$\frac{15}{32}$	1.58023	1446.9703	1.58118	1453.3171	1.58213	1459.6777
$\frac{1}{2}$	1.58026	1447.1684	1.58121	1453.5156	1.58216	1459.8767
$\frac{17}{32}$	1.58029	1447.3665	1.58124	1453.7142	1.58219	1460.0757
$\frac{9}{16}$	1.58032	1447.5647	1.58127	1453.9128	1.58222	1460.2748
$\frac{19}{32}$	1.58035	1447.7629	1.58130	1454.1114	1.58225	1460.4738
$\frac{5}{8}$	1.58038	1447.9610	1.58133	1454.3100	1.58228	1460.6729
$\frac{21}{32}$	1.58041	1448.1592	1.58136	1454.5086	1.58231	1460.8719
$\frac{11}{16}$	1.58044	1448.3574	1.58139	1454.7073	1.58234	1461.0710
$\frac{23}{32}$	1.58047	1448.5557	1.58142	1454.9059	1.58237	1461.2701
$\frac{3}{4}$	1.58050	1448.7539	1.58145	1455.1046	1.58239	1461.4692
$\frac{25}{32}$	1.58053	1448.9522	1.58148	1455.3033	1.58242	1461.6683
$\frac{13}{16}$	1.58056	1449.1504	1.58151	1455.5020	1.58245	1461.8674
$\frac{27}{32}$	1.58059	1449.3487	1.58154	1455.7007	1.58248	1462.0666
$\frac{7}{8}$	1.58062	1449.5470	1.58157	1455.8994	1.58251	1462.2657
$\frac{29}{32}$	1.58065	1449.7453	1.58160	1456.0982	1.58254	1462.4649
$\frac{15}{16}$	1.58068	1449.9436	1.58162	1456.2969	1.58257	1462.6641
$\frac{31}{32}$	1.58071	1450.1419	1.58165	1456.4957	1.58260	1462.8633
1	1.58073	1450.3403	1.58168	1456.6944	1.58263	1463.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.58263	1463.0625	1.58358	1469.4444	1.58452	1475.8403
$\frac{1}{32}$	1.58266	1463.2617	1.58361	1469.6441	1.58455	1476.0404
$\frac{1}{16}$	1.58269	1463.4610	1.58364	1469.8438	1.58458	1476.2405
$\frac{3}{32}$	1.58272	1463.6602	1.58367	1470.0435	1.58461	1476.4406
$\frac{1}{8}$	1.58275	1463.8595	1.58369	1470.2432	1.58464	1476.6407
$\frac{5}{32}$	1.58278	1464.0588	1.58372	1470.4429	1.58467	1476.8409
$\frac{3}{16}$	1.58281	1464.2581	1.58375	1470.6426	1.58470	1477.0410
$\frac{7}{32}$	1.58284	1464.4574	1.58378	1470.8423	1.58473	1477.2412
$\frac{1}{4}$	1.58287	1464.6567	1.58381	1471.0421	1.58476	1477.4414
$\frac{9}{32}$	1.58290	1464.8560	1.58384	1471.2419	1.58478	1477.6416
$\frac{5}{16}$	1.58293	1465.0554	1.58387	1471.4417	1.58481	1477.8418
$\frac{11}{32}$	1.58296	1465.2547	1.58390	1471.6414	1.58484	1478.0421
$\frac{3}{8}$	1.58299	1465.4541	1.58393	1471.8413	1.58487	1478.2423
$\frac{13}{32}$	1.58302	1465.6535	1.58396	1472.0411	1.58490	1478.4426
$\frac{7}{16}$	1.58305	1465.8529	1.58399	1472.2409	1.58493	1478.6428
$\frac{15}{32}$	1.58307	1466.0523	1.58402	1472.4408	1.58496	1478.8431
$\frac{1}{2}$	1.58310	1466.2517	1.58405	1472.6406	1.58499	1479.0434
$\frac{17}{32}$	1.58313	1466.4512	1.58408	1472.8405	1.58502	1479.2437
$\frac{9}{16}$	1.58316	1466.6506	1.58411	1473.0404	1.58505	1479.4440
$\frac{19}{32}$	1.58319	1466.8501	1.58414	1473.2403	1.58508	1479.6444
$\frac{5}{8}$	1.58322	1467.0496	1.58417	1473.4402	1.58511	1479.8447
$\frac{21}{32}$	1.58325	1467.2491	1.58420	1473.6401	1.58514	1480.0451
$\frac{11}{16}$	1.58328	1467.4486	1.58423	1473.8401	1.58517	1480.2455
$\frac{23}{32}$	1.58331	1467.6481	1.58425	1474.0400	1.58520	1480.4459
$\frac{3}{4}$	1.58334	1467.8477	1.58428	1474.2400	1.58523	1480.6463
$\frac{25}{32}$	1.58337	1468.0472	1.58431	1474.4400	1.58526	1480.8467
$\frac{13}{16}$	1.58340	1468.2468	1.58434	1474.6400	1.58528	1481.0471
$\frac{27}{32}$	1.58343	1468.4464	1.58437	1474.8400	1.58531	1481.2476
$\frac{7}{8}$	1.58346	1468.6459	1.58440	1475.0400	1.58534	1481.4480
$\frac{29}{32}$	1.58349	1468.8455	1.58443	1475.2401	1.58537	1481.6485
$\frac{15}{16}$	1.58352	1469.0452	1.58446	1475.4401	1.58540	1481.8490
$\frac{31}{32}$	1.58355	1469.2448	1.58449	1475.6402	1.58543	1482.0495
1	1.58358	1469.4444	1.58452	1475.8403	1.58546	1482.2500

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.59106	1521.0000	1.59199	1527.5069	1.59292	1534.0278
$\frac{1}{32}$	1.59109	1521.2031	1.59202	1527.7105	1.59295	1534.2318
$\frac{1}{16}$	1.59112	1521.4063	1.59205	1527.9141	1.59297	1534.4358
$\frac{3}{32}$	1.59115	1521.6094	1.59208	1528.1177	1.59300	1534.6398
$\frac{1}{8}$	1.59118	1521.8126	1.59211	1528.3213	1.59303	1534.8439
$\frac{5}{32}$	1.59121	1522.0158	1.59214	1528.5249	1.59306	1535.0479
$\frac{3}{16}$	1.59124	1522.2190	1.59217	1528.7285	1.59309	1535.2520
$\frac{7}{32}$	1.59127	1522.4222	1.59219	1528.9322	1.59312	1535.4561
$\frac{1}{4}$	1.59130	1522.6254	1.59222	1529.1359	1.59315	1535.6602
$\frac{9}{32}$	1.59133	1522.8287	1.59225	1529.3395	1.59318	1535.8643
$\frac{5}{16}$	1.59135	1523.0319	1.59228	1529.5432	1.59321	1536.0684
$\frac{11}{32}$	1.59138	1523.2352	1.59231	1529.7469	1.59323	1536.2725
$\frac{3}{8}$	1.59141	1523.4385	1.59234	1529.9506	1.59326	1536.4767
$\frac{13}{32}$	1.59144	1523.6418	1.59237	1530.1544	1.59329	1536.6808
$\frac{7}{16}$	1.59147	1523.8451	1.59240	1530.3581	1.59332	1536.8850
$\frac{15}{32}$	1.59150	1524.0484	1.59243	1530.5619	1.59335	1537.0892
$\frac{1}{2}$	1.59153	1524.2517	1.59245	1530.7656	1.59338	1537.2934
$\frac{17}{32}$	1.59156	1524.4551	1.59248	1530.9694	1.59341	1537.4976
$\frac{9}{16}$	1.59159	1524.6584	1.59251	1531.1732	1.59344	1537.7019
$\frac{19}{32}$	1.59162	1524.8618	1.59254	1531.3770	1.59346	1537.9061
$\frac{5}{8}$	1.59164	1525.0652	1.59257	1531.5808	1.59349	1538.1104
$\frac{21}{32}$	1.59167	1525.2686	1.59260	1531.7847	1.59352	1538.3146
$\frac{11}{16}$	1.59170	1525.4720	1.59263	1531.9885	1.59355	1538.5189
$\frac{23}{32}$	1.59173	1525.6755	1.59266	1532.1924	1.59358	1538.7232
$\frac{3}{4}$	1.59176	1525.8789	1.59269	1532.3963	1.59361	1538.9275
$\frac{25}{32}$	1.59179	1526.0824	1.59271	1532.6002	1.59364	1539.1318
$\frac{13}{16}$	1.59182	1526.2858	1.59274	1532.8041	1.59367	1539.3362
$\frac{27}{32}$	1.59185	1526.4893	1.59277	1533.0080	1.59370	1539.5405
$\frac{7}{8}$	1.59188	1526.6928	1.59280	1533.2119	1.59373	1539.7449
$\frac{29}{32}$	1.59190	1526.8963	1.59283	1533.4159	1.59375	1539.9493
$\frac{15}{16}$	1.59193	1527.0999	1.59286	1533.6198	1.59378	1540.1537
$\frac{31}{32}$	1.59196	1527.3034	1.59289	1533.8238	1.59381	1540.3581
1	1.59199	1527.5069	1.59292	1534.0278	1.59384	1540.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.50384	1540.5625	1.50476	1547.1111	1.50568	1553.8736
$\frac{1}{32}$	1.50387	1540.7680	1.50479	1547.3160	1.50571	1553.8789
$\frac{1}{16}$	1.50390	1540.9714	1.50482	1547.5209	1.50574	1554.0842
$\frac{3}{32}$	1.50393	1541.1758	1.50485	1547.7258	1.50577	1554.2896
$\frac{1}{8}$	1.50395	1541.3803	1.50488	1547.9307	1.50579	1554.4949
$\frac{5}{32}$	1.50398	1541.5848	1.50490	1548.1356	1.50582	1554.7003
$\frac{3}{16}$	1.50401	1541.7893	1.50493	1548.3405	1.50585	1554.9056
$\frac{7}{32}$	1.50404	1541.9938	1.50496	1548.5455	1.50588	1555.1110
$\frac{1}{4}$	1.50407	1542.1984	1.50499	1548.7504	1.50591	1555.3164
$\frac{9}{32}$	1.50410	1542.4029	1.50502	1548.9554	1.50594	1555.5218
$\frac{5}{16}$	1.50413	1542.6074	1.50505	1549.1604	1.50597	1555.7272
$\frac{11}{32}$	1.50416	1542.8120	1.50508	1549.3654	1.50600	1555.9327
$\frac{3}{8}$	1.50419	1543.0166	1.50511	1549.5704	1.50602	1556.1381
$\frac{13}{32}$	1.50421	1543.2212	1.50513	1549.7755	1.50605	1556.3436
$\frac{7}{16}$	1.50424	1543.4258	1.50516	1549.9805	1.50608	1556.5491
$\frac{15}{32}$	1.50427	1543.6304	1.50519	1550.1856	1.50611	1556.7546
$\frac{1}{2}$	1.50430	1543.8351	1.50522	1550.3906	1.50614	1556.9601
$\frac{17}{32}$	1.50433	1544.0397	1.50525	1550.5957	1.50617	1557.1656
$\frac{9}{16}$	1.50436	1544.2444	1.50528	1550.8008	1.50620	1557.3711
$\frac{19}{32}$	1.50439	1544.4491	1.50531	1551.0059	1.50622	1557.5767
$\frac{5}{8}$	1.50442	1544.6538	1.50534	1551.2110	1.50625	1557.7822
$\frac{21}{32}$	1.50444	1544.8585	1.50536	1551.4162	1.50628	1557.9878
$\frac{11}{16}$	1.50447	1545.0632	1.50539	1551.6213	1.50631	1558.1934
$\frac{23}{32}$	1.50450	1545.2679	1.50542	1551.8265	1.50634	1558.3990
$\frac{3}{4}$	1.50453	1545.4727	1.50545	1552.0317	1.50637	1558.6046
$\frac{25}{32}$	1.50456	1545.6774	1.50548	1552.2369	1.50640	1558.8102
$\frac{13}{16}$	1.50459	1545.8822	1.50551	1552.4421	1.50643	1559.0159
$\frac{27}{32}$	1.50462	1546.0870	1.50554	1552.6473	1.50645	1559.2215
$\frac{7}{8}$	1.50465	1546.2918	1.50557	1552.8525	1.50648	1559.4272
$\frac{29}{32}$	1.50467	1546.4966	1.50559	1553.0578	1.50651	1559.6329
$\frac{15}{16}$	1.50470	1546.7014	1.50562	1553.2630	1.50654	1559.8386
$\frac{31}{32}$	1.50473	1546.9063	1.50565	1553.4683	1.50657	1560.0443
1	1.50476	1547.1111	1.50568	1553.6736	1.50660	1560.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.59660	1560.2500	1.59751	1566.8403	1.59843	1573.4444
$\frac{1}{32}$	1.59663	1560.4557	1.59754	1567.0464	1.59845	1573.6510
$\frac{1}{16}$	1.59665	1560.6615	1.59757	1567.2526	1.59848	1573.8577
$\frac{3}{32}$	1.59668	1560.8672	1.59760	1567.4588	1.59851	1574.0643
$\frac{1}{8}$	1.59671	1561.0730	1.59763	1567.6650	1.59854	1574.2709
$\frac{5}{32}$	1.59674	1561.2788	1.59766	1567.8713	1.59857	1574.4776
$\frac{3}{16}$	1.59677	1561.4846	1.59768	1568.0775	1.59860	1574.6843
$\frac{7}{32}$	1.59680	1561.6904	1.59771	1568.2838	1.59863	1574.8910
$\frac{1}{4}$	1.59683	1561.8963	1.59774	1568.4900	1.59865	1575.0977
$\frac{9}{32}$	1.59685	1562.1021	1.59777	1568.6963	1.59868	1575.3044
$\frac{5}{16}$	1.59688	1562.3080	1.59780	1568.9026	1.59871	1575.5111
$\frac{11}{32}$	1.59691	1562.5138	1.59783	1569.1089	1.59874	1575.7178
$\frac{3}{8}$	1.59694	1562.7197	1.59786	1569.3152	1.59877	1575.9246
$\frac{13}{32}$	1.59697	1562.9256	1.59788	1569.5215	1.59880	1576.1314
$\frac{7}{16}$	1.59700	1563.1315	1.59791	1569.7279	1.59882	1576.3381
$\frac{15}{32}$	1.59703	1563.3375	1.59794	1569.9343	1.59885	1576.5449
$\frac{1}{2}$	1.59705	1563.5434	1.59797	1570.1406	1.59888	1576.7517
$\frac{17}{32}$	1.59708	1563.7494	1.59800	1570.3470	1.59891	1576.9586
$\frac{9}{16}$	1.59711	1563.9553	1.59803	1570.5534	1.59894	1577.1654
$\frac{19}{32}$	1.59714	1564.1613	1.59805	1570.7598	1.59897	1577.3722
$\frac{5}{8}$	1.59717	1564.3673	1.59808	1570.9663	1.59900	1577.5791
$\frac{21}{32}$	1.59720	1564.5733	1.59811	1571.1727	1.59902	1577.7860
$\frac{11}{16}$	1.59723	1564.7793	1.59814	1571.3792	1.59905	1577.9929
$\frac{23}{32}$	1.59726	1564.9854	1.59817	1571.5856	1.59908	1578.1998
$\frac{3}{4}$	1.59728	1565.1914	1.59820	1571.7921	1.59911	1578.4067
$\frac{25}{32}$	1.59731	1565.3975	1.59823	1571.9986	1.59914	1578.6136
$\frac{13}{16}$	1.59734	1565.6035	1.59825	1572.2051	1.59917	1578.8206
$\frac{27}{32}$	1.59737	1565.8096	1.59828	1572.4116	1.59919	1579.0275
$\frac{7}{8}$	1.59740	1566.0157	1.59831	1572.6182	1.59922	1579.2345
$\frac{29}{32}$	1.59743	1566.2218	1.59834	1572.8247	1.59925	1579.4415
$\frac{15}{16}$	1.59746	1566.4280	1.59837	1573.0313	1.59928	1579.6485
$\frac{31}{32}$	1.59748	1566.6341	1.59840	1573.2379	1.59931	1579.8555
1	1.59751	1566.8403	1.59843	1573.4444	1.59934	1580.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.59934	1580.0625	1.60025	1586.6944	1.60115	1593.3403
$\frac{1}{32}$	1.59937	1580.2695	1.60028	1586.9019	1.60118	1593.5482
$\frac{1}{16}$	1.59939	1580.4766	1.60030	1587.1094	1.60121	1593.7561
$\frac{3}{32}$	1.59942	1580.6837	1.60033	1587.3169	1.60124	1593.9640
$\frac{1}{8}$	1.59945	1580.8907	1.60036	1587.5244	1.60127	1594.1720
$\frac{5}{32}$	1.59948	1581.0978	1.60039	1587.7319	1.60130	1594.3799
$\frac{3}{16}$	1.59951	1581.3049	1.60042	1587.9395	1.60132	1594.5879
$\frac{7}{32}$	1.59954	1581.5121	1.60045	1588.1470	1.60135	1594.7959
$\frac{1}{4}$	1.59956	1581.7192	1.60047	1588.3546	1.60138	1595.0039
$\frac{9}{32}$	1.59959	1581.9263	1.60050	1588.5622	1.60141	1595.2119
$\frac{5}{16}$	1.59962	1582.1335	1.60053	1588.7698	1.60144	1595.4199
$\frac{11}{32}$	1.59965	1582.3407	1.60056	1588.9774	1.60147	1595.6280
$\frac{3}{8}$	1.59968	1582.5479	1.60059	1589.1850	1.60149	1595.8360
$\frac{13}{32}$	1.59971	1582.7551	1.60062	1589.3926	1.60152	1596.0441
$\frac{7}{16}$	1.59974	1582.9623	1.60064	1589.6003	1.60155	1596.2522
$\frac{15}{32}$	1.59976	1583.1695	1.60067	1589.8079	1.60158	1596.4603
$\frac{1}{2}$	1.59979	1583.3767	1.60070	1590.0156	1.60161	1596.6684
$\frac{17}{32}$	1.59982	1583.5840	1.60073	1590.2233	1.60164	1596.8765
$\frac{9}{16}$	1.59985	1583.7913	1.60076	1590.4310	1.60166	1597.0847
$\frac{19}{32}$	1.59988	1583.9985	1.60079	1590.6387	1.60169	1597.2928
$\frac{5}{8}$	1.59991	1584.2058	1.60081	1590.8465	1.60172	1597.5010
$\frac{21}{32}$	1.59993	1584.4131	1.60084	1591.0542	1.60175	1597.7092
$\frac{11}{16}$	1.59996	1584.6205	1.60087	1591.2620	1.60178	1597.9173
$\frac{23}{32}$	1.59999	1584.8278	1.60090	1591.4697	1.60181	1598.1255
$\frac{3}{4}$	1.60002	1585.0352	1.60093	1591.6775	1.60183	1598.3338
$\frac{25}{32}$	1.60005	1585.2425	1.60096	1591.8853	1.60186	1598.5420
$\frac{13}{16}$	1.60008	1585.4499	1.60098	1592.0931	1.60189	1598.7502
$\frac{27}{32}$	1.60010	1585.6573	1.60101	1592.3010	1.60192	1598.9585
$\frac{7}{8}$	1.60013	1585.8647	1.60104	1592.5088	1.60195	1599.1668
$\frac{29}{32}$	1.60016	1586.0721	1.60107	1592.7166	1.60198	1599.3751
$\frac{15}{16}$	1.60019	1586.2795	1.60110	1592.9245	1.60200	1599.5834
$\frac{31}{32}$	1.60022	1586.4870	1.60113	1593.1324	1.60203	1599.7917
1	1.60025	1586.6944	1.60115	1593.3403	1.60206	1600.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.60206	1600.0000	1.60296	1606.6736	1.60387	1613.3611
$\frac{1}{32}$	1.60209	1600.2083	1.60299	1606.8824	1.60389	1613.5703
$\frac{1}{16}$	1.60212	1600.4167	1.60302	1607.0912	1.60392	1613.7795
$\frac{3}{32}$	1.60214	1600.6251	1.60305	1607.3000	1.60395	1613.9888
$\frac{1}{8}$	1.60217	1600.8334	1.60308	1607.5088	1.60398	1614.1980
$\frac{5}{32}$	1.60220	1601.0418	1.60310	1607.7176	1.60401	1614.4073
$\frac{3}{16}$	1.60223	1601.2502	1.60313	1607.9265	1.60403	1614.6166
$\frac{7}{32}$	1.60226	1601.4587	1.60316	1608.1353	1.60406	1614.8259
$\frac{1}{4}$	1.60229	1601.6671	1.60319	1608.3442	1.60409	1615.0352
$\frac{9}{32}$	1.60231	1601.8755	1.60322	1608.5531	1.60412	1615.2445
$\frac{5}{16}$	1.60234	1602.0840	1.60325	1608.7620	1.60415	1615.4538
$\frac{11}{32}$	1.60237	1602.2925	1.60327	1608.9709	1.60418	1615.6631
$\frac{3}{8}$	1.60240	1602.5010	1.60330	1609.1798	1.60420	1615.8725
$\frac{13}{32}$	1.60243	1602.7095	1.60333	1609.3887	1.60423	1616.0819
$\frac{7}{16}$	1.60246	1602.9180	1.60336	1609.5977	1.60426	1616.2913
$\frac{15}{32}$	1.60248	1603.1265	1.60339	1609.8066	1.60429	1616.5007
$\frac{1}{2}$	1.60251	1603.3351	1.60342	1610.0156	1.60432	1616.7101
$\frac{17}{32}$	1.60254	1603.5436	1.60344	1610.2246	1.60434	1616.9195
$\frac{9}{16}$	1.60257	1603.7522	1.60347	1610.4336	1.60437	1617.1289
$\frac{19}{32}$	1.60260	1603.9608	1.60350	1610.6426	1.60440	1617.3384
$\frac{5}{8}$	1.60263	1604.1694	1.60353	1610.8517	1.60443	1617.5479
$\frac{21}{32}$	1.60265	1604.3780	1.60356	1611.0607	1.60446	1617.7573
$\frac{11}{16}$	1.60268	1604.5866	1.60358	1611.2698	1.60449	1617.9668
$\frac{23}{32}$	1.60271	1604.7953	1.60361	1611.4788	1.60451	1618.1763
$\frac{3}{4}$	1.60274	1605.0039	1.60364	1611.6879	1.60454	1618.3859
$\frac{25}{32}$	1.60277	1605.2126	1.60367	1611.8970	1.60457	1618.5954
$\frac{13}{16}$	1.60279	1605.4213	1.60370	1612.1061	1.60460	1618.8049
$\frac{27}{32}$	1.60282	1605.6299	1.60372	1612.3153	1.60463	1619.0145
$\frac{7}{8}$	1.60285	1605.8386	1.60375	1612.5244	1.60465	1619.2241
$\frac{29}{32}$	1.60288	1606.0474	1.60378	1612.7336	1.60468	1619.4337
$\frac{15}{16}$	1.60291	1606.2561	1.60381	1612.9427	1.60471	1619.6433
$\frac{31}{32}$	1.60294	1606.4649	1.60384	1613.1519	1.60474	1619.8529
1	1.60296	1606.6736	1.60387	1613.3611	1.60477	1620.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.60477	1620.0625	1.60566	1626.7778	1.60656	1633.5069
$\frac{1}{32}$	1.60479	1620.2721	1.60569	1626.9879	1.60659	1633.7175
$\frac{1}{16}$	1.60482	1620.4818	1.60572	1627.1979	1.60662	1633.9280
$\frac{3}{32}$	1.60485	1620.6915	1.60575	1627.4080	1.60664	1634.1385
$\frac{1}{8}$	1.60488	1620.9012	1.60578	1627.6182	1.60667	1634.3491
$\frac{5}{32}$	1.60491	1621.1108	1.60580	1627.8283	1.60670	1634.5596
$\frac{3}{16}$	1.60493	1621.3206	1.60583	1628.0384	1.60673	1634.7702
$\frac{7}{32}$	1.60496	1621.5303	1.60586	1628.2486	1.60676	1634.9808
$\frac{1}{4}$	1.60499	1621.7400	1.60589	1628.4588	1.60678	1635.1914
$\frac{9}{32}$	1.60502	1621.9498	1.60592	1628.6690	1.60681	1635.4020
$\frac{5}{16}$	1.60505	1622.1595	1.60594	1628.8792	1.60684	1635.6127
$\frac{11}{32}$	1.60507	1622.3693	1.60597	1629.0894	1.60687	1635.8233
$\frac{3}{8}$	1.60510	1622.5791	1.60600	1629.2996	1.60690	1636.0340
$\frac{13}{32}$	1.60513	1622.7889	1.60603	1629.5098	1.60692	1636.2446
$\frac{7}{16}$	1.60516	1622.9987	1.60606	1629.7201	1.60695	1636.4553
$\frac{15}{32}$	1.60519	1623.2086	1.60608	1629.9303	1.60698	1636.6660
$\frac{1}{2}$	1.60522	1623.4184	1.60611	1630.1406	1.60701	1636.8767
$\frac{17}{32}$	1.60524	1623.6283	1.60614	1630.3509	1.60704	1637.0875
$\frac{9}{16}$	1.60527	1623.8381	1.60617	1630.5612	1.60706	1637.2982
$\frac{19}{32}$	1.60530	1624.0480	1.60620	1630.7715	1.60709	1637.5090
$\frac{5}{8}$	1.60533	1624.2579	1.60622	1630.9819	1.60712	1637.7197
$\frac{21}{32}$	1.60536	1624.4678	1.60625	1631.1922	1.60715	1637.9305
$\frac{11}{16}$	1.60538	1624.6778	1.60628	1631.4026	1.60718	1638.1413
$\frac{23}{32}$	1.60541	1624.8877	1.60631	1631.6130	1.60720	1638.3521
$\frac{3}{4}$	1.60544	1625.0977	1.60634	1631.8234	1.60723	1638.5629
$\frac{25}{32}$	1.60547	1625.3076	1.60636	1632.0338	1.60726	1638.7738
$\frac{13}{16}$	1.60550	1625.5176	1.60639	1632.2442	1.60729	1638.9846
$\frac{27}{32}$	1.60552	1625.7276	1.60642	1632.4546	1.60732	1639.1955
$\frac{7}{8}$	1.60555	1625.9376	1.60645	1632.6650	1.60734	1639.4064
$\frac{29}{32}$	1.60558	1626.1476	1.60648	1632.8755	1.60737	1639.6172
$\frac{15}{16}$	1.60561	1626.3577	1.60650	1633.0860	1.60740	1639.8282
$\frac{31}{32}$	1.60564	1626.5677	1.60653	1633.2964	1.60743	1640.0391
1	1.60566	1626.7778	1.60656	1633.5069	1.60746	1640.2500

Fractions of an inch	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.60746	1640.2500	1.60835	1647.0069	1.60924	1653.7778
$\frac{1}{32}$	1.60748	1640.4609	1.60838	1647.2183	1.60927	1653.9896
$\frac{1}{16}$	1.60751	1640.6719	1.60840	1647.4297	1.60929	1654.2014
$\frac{3}{32}$	1.60754	1640.8829	1.60843	1647.6411	1.60932	1654.4133
$\frac{1}{8}$	1.60757	1641.0939	1.60846	1647.8525	1.60935	1654.6251
$\frac{5}{32}$	1.60759	1641.3049	1.60849	1648.0640	1.60938	1654.8370
$\frac{3}{16}$	1.60762	1641.5159	1.60851	1648.2754	1.60941	1655.0489
$\frac{7}{32}$	1.60765	1641.7269	1.60854	1648.4869	1.60943	1655.2607
$\frac{1}{4}$	1.60768	1641.9379	1.60857	1648.6984	1.60946	1655.4727
$\frac{9}{32}$	1.60771	1642.1490	1.60860	1648.9098	1.60949	1655.6846
$\frac{5}{16}$	1.60773	1642.3601	1.60863	1649.1213	1.60952	1655.8965
$\frac{11}{32}$	1.60776	1642.5711	1.60865	1649.3329	1.60954	1656.1085
$\frac{3}{8}$	1.60779	1642.7822	1.60868	1649.5444	1.60957	1656.3204
$\frac{13}{32}$	1.60782	1642.9933	1.60871	1649.7559	1.60960	1656.5324
$\frac{7}{16}$	1.60785	1643.2045	1.60874	1649.9675	1.60963	1656.7444
$\frac{15}{32}$	1.60787	1643.4156	1.60877	1650.1790	1.60966	1656.9564
$\frac{1}{2}$	1.60790	1643.6267	1.60879	1650.3906	1.60968	1657.1684
$\frac{17}{32}$	1.60793	1643.8379	1.60882	1650.6022	1.60971	1657.3804
$\frac{9}{16}$	1.60796	1644.0491	1.60885	1650.8138	1.60974	1657.5925
$\frac{19}{32}$	1.60799	1644.2603	1.60888	1651.0255	1.60977	1657.8045
$\frac{5}{8}$	1.60801	1644.4715	1.60890	1651.2371	1.60979	1658.0166
$\frac{21}{32}$	1.60804	1644.6827	1.60893	1651.4487	1.60982	1658.2287
$\frac{11}{16}$	1.60807	1644.8939	1.60896	1651.6604	1.60985	1658.4408
$\frac{23}{32}$	1.60810	1645.1052	1.60899	1651.8721	1.60988	1658.6529
$\frac{3}{4}$	1.60812	1645.3164	1.60902	1652.0838	1.60991	1658.8650
$\frac{25}{32}$	1.60815	1645.5277	1.60904	1652.2955	1.60993	1659.0772
$\frac{13}{16}$	1.60818	1645.7390	1.60907	1652.5072	1.60996	1659.2893
$\frac{27}{32}$	1.60821	1645.9503	1.60910	1652.7189	1.60999	1659.5015
$\frac{7}{8}$	1.60824	1646.1616	1.60913	1652.9307	1.61002	1659.7137
$\frac{29}{32}$	1.60826	1646.3729	1.60916	1653.1424	1.61004	1659.9258
$\frac{15}{16}$	1.60829	1646.5842	1.60918	1653.3542	1.61007	1660.1380
$\frac{31}{32}$	1.60832	1646.7956	1.60921	1653.5660	1.61010	1660.3503
1	1.60835	1647.0069	1.60924	1653.7778	1.61013	1660.5625

# 40'

Fractions of an inch	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61013	1660.5625	1.61101	1667.3611	1.61190	1674.1736
$\frac{1}{32}$	1.61016	1660.7747	1.61104	1667.5738	1.61193	1674.3867
$\frac{1}{16}$	1.61018	1660.9870	1.61107	1667.7865	1.61196	1674.5999
$\frac{3}{32}$	1.61021	1661.1993	1.61110	1667.9992	1.61198	1674.8130
$\frac{1}{8}$	1.61024	1661.4116	1.61113	1668.2119	1.61201	1675.0262
$\frac{5}{32}$	1.61027	1661.6239	1.61115	1668.4246	1.61204	1675.2393
$\frac{3}{16}$	1.61029	1661.8362	1.61118	1668.6374	1.61207	1675.4525
$\frac{7}{32}$	1.61032	1662.0485	1.61121	1668.8502	1.61209	1675.6657
$\frac{1}{4}$	1.61035	1662.2609	1.61124	1669.0629	1.61212	1675.8789
$\frac{9}{32}$	1.61038	1662.4732	1.61126	1669.2757	1.61215	1676.0921
$\frac{5}{16}$	1.61041	1662.6856	1.61129	1669.4885	1.61218	1676.3054
$\frac{11}{32}$	1.61043	1662.8980	1.61132	1669.7013	1.61220	1676.5186
$\frac{3}{8}$	1.61046	1663.1104	1.61135	1669.9142	1.61223	1676.7319
$\frac{13}{32}$	1.61049	1663.3228	1.61137	1670.1270	1.61226	1676.9452
$\frac{7}{16}$	1.61052	1663.5352	1.61140	1670.3399	1.61229	1677.1584
$\frac{15}{32}$	1.61054	1663.7476	1.61143	1670.5527	1.61231	1677.3718
$\frac{1}{2}$	1.61057	1663.9601	1.61146	1670.7656	1.61234	1677.5851
$\frac{17}{32}$	1.61060	1664.1725	1.61149	1670.9785	1.61237	1677.7984
$\frac{9}{16}$	1.61063	1664.3850	1.61151	1671.1914	1.61240	1678.0117
$\frac{19}{32}$	1.61065	1664.5975	1.61154	1671.4044	1.61243	1678.2251
$\frac{5}{8}$	1.61068	1664.8100	1.61157	1671.6173	1.61245	1678.4385
$\frac{21}{32}$	1.61071	1665.0225	1.61160	1671.8302	1.61248	1678.6519
$\frac{11}{16}$	1.61074	1665.2351	1.61162	1672.0432	1.61251	1678.8653
$\frac{23}{32}$	1.61077	1665.4476	1.61165	1672.2562	1.61254	1679.0787
$\frac{3}{4}$	1.61079	1665.6602	1.61168	1672.4692	1.61256	1679.2921
$\frac{25}{32}$	1.61082	1665.8727	1.61171	1672.6822	1.61259	1679.5055
$\frac{13}{16}$	1.61085	1666.0853	1.61173	1672.8952	1.61262	1679.7190
$\frac{27}{32}$	1.61088	1666.2979	1.61176	1673.1082	1.61265	1679.9325
$\frac{7}{8}$	1.61090	1666.5105	1.61179	1673.3213	1.61267	1680.1459
$\frac{29}{32}$	1.61093	1666.7232	1.61182	1673.5343	1.61270	1680.3594
$\frac{15}{16}$	1.61096	1666.9358	1.61184	1673.7474	1.61273	1680.5729
$\frac{31}{32}$	1.61099	1667.1484	1.61187	1673.9605	1.61276	1680.7865
1	1.61101	1667.3611	1.61190	1674.1736	1.61278	1681.0000

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61278	1681.0000	1.61367	1687.8403	1.61455	1694.6944
$\frac{1}{32}$	1.61281	1681.2135	1.61369	1688.0543	1.61457	1694.9089
$\frac{1}{16}$	1.61284	1681.4271	1.61372	1688.2683	1.61460	1695.1233
$\frac{3}{32}$	1.61287	1681.6407	1.61375	1688.4823	1.61463	1695.3377
$\frac{1}{8}$	1.61289	1681.8543	1.61378	1688.6963	1.61466	1695.5522
$\frac{5}{32}$	1.61292	1682.0679	1.61380	1688.9103	1.61468	1695.7667
$\frac{3}{16}$	1.61295	1682.2815	1.61383	1689.1244	1.61471	1695.9811
$\frac{7}{32}$	1.61298	1682.4951	1.61386	1689.3384	1.61474	1696.1956
$\frac{1}{4}$	1.61300	1682.7088	1.61389	1689.5525	1.61477	1696.4102
$\frac{9}{32}$	1.61303	1682.9224	1.61391	1689.7666	1.61479	1696.6247
$\frac{5}{16}$	1.61306	1683.1361	1.61394	1689.9807	1.61482	1696.8392
$\frac{11}{32}$	1.61309	1683.3498	1.61397	1690.1948	1.61485	1697.0538
$\frac{3}{8}$	1.61311	1683.5635	1.61400	1690.4090	1.61488	1697.2683
$\frac{13}{32}$	1.61314	1683.7772	1.61402	1690.6231	1.61490	1697.4829
$\frac{7}{16}$	1.61317	1683.9909	1.61405	1690.8373	1.61493	1697.6975
$\frac{15}{32}$	1.61320	1684.2047	1.61408	1691.0514	1.61496	1697.9121
$\frac{1}{2}$	1.61322	1684.4184	1.61411	1691.2656	1.61499	1698.1267
$\frac{17}{32}$	1.61325	1684.6322	1.61413	1691.4798	1.61501	1698.3414
$\frac{9}{16}$	1.61328	1684.8459	1.61416	1691.6940	1.61504	1698.5560
$\frac{19}{32}$	1.61331	1685.0597	1.61419	1691.9083	1.61507	1698.7707
$\frac{5}{8}$	1.61334	1685.2735	1.61422	1692.1225	1.61509	1698.9854
$\frac{21}{32}$	1.61336	1685.4874	1.61424	1692.3368	1.61512	1699.2000
$\frac{11}{16}$	1.61339	1685.7012	1.61427	1692.5510	1.61515	1699.4147
$\frac{23}{32}$	1.61342	1685.9150	1.61430	1692.7653	1.61518	1699.6295
$\frac{3}{4}$	1.61345	1686.1289	1.61433	1692.9796	1.61520	1699.8442
$\frac{25}{32}$	1.61347	1686.3428	1.61435	1693.1939	1.61523	1700.0589
$\frac{13}{16}$	1.61350	1686.5567	1.61438	1693.4082	1.61526	1700.2737
$\frac{27}{32}$	1.61353	1686.7706	1.61441	1693.6226	1.61529	1700.4885
$\frac{7}{8}$	1.61356	1686.9845	1.61444	1693.8369	1.61531	1700.7032
$\frac{29}{32}$	1.61358	1687.1984	1.61446	1694.0513	1.61534	1700.9180
$\frac{15}{16}$	1.61361	1687.4124	1.61449	1694.2657	1.61537	1701.1328
$\frac{31}{32}$	1.61364	1687.6263	1.61452	1694.4800	1.61540	1701.3477
1	1.61367	1687.8403	1.61455	1694.6944	1.61542	1701.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61542	1701.5625	1.61630	1708.4444	1.61718	1715.3408
$\frac{1}{32}$	1.61545	1701.7774	1.61633	1708.6597	1.61720	1715.5560
$\frac{1}{16}$	1.61548	1701.9922	1.61636	1708.8750	1.61723	1715.7717
$\frac{3}{32}$	1.61551	1702.2071	1.61638	1709.0903	1.61726	1715.9875
$\frac{1}{8}$	1.61553	1702.4220	1.61641	1709.3057	1.61728	1716.2032
$\frac{5}{32}$	1.61556	1702.6369	1.61644	1709.5210	1.61731	1716.4190
$\frac{3}{16}$	1.61559	1702.8518	1.61646	1709.7364	1.61734	1716.6348
$\frac{7}{32}$	1.61562	1703.0667	1.61649	1709.9517	1.61737	1716.8506
$\frac{1}{4}$	1.61564	1703.2817	1.61652	1710.1671	1.61739	1717.0664
$\frac{9}{32}$	1.61567	1703.4966	1.61655	1710.3825	1.61742	1717.2822
$\frac{5}{16}$	1.61570	1703.7116	1.61657	1710.5979	1.61745	1717.4981
$\frac{11}{32}$	1.61573	1703.9266	1.61660	1710.8133	1.61748	1717.7139
$\frac{3}{8}$	1.61575	1704.1416	1.61663	1711.0288	1.61750	1717.9298
$\frac{13}{32}$	1.61578	1704.3566	1.61666	1711.2442	1.61753	1718.1457
$\frac{7}{16}$	1.61581	1704.5716	1.61668	1711.4597	1.61756	1718.3616
$\frac{15}{32}$	1.61584	1704.7867	1.61671	1711.6751	1.61758	1718.5775
$\frac{1}{2}$	1.61586	1705.0017	1.61674	1711.8906	1.61761	1718.7934
$\frac{17}{32}$	1.61589	1705.2168	1.61677	1712.1061	1.61764	1719.0093
$\frac{9}{16}$	1.61592	1705.4319	1.61679	1712.3216	1.61767	1719.2253
$\frac{19}{32}$	1.61594	1705.6470	1.61682	1712.5372	1.61769	1719.4413
$\frac{5}{8}$	1.61597	1705.8621	1.61685	1712.7527	1.61772	1719.6572
$\frac{21}{32}$	1.61600	1706.0772	1.61687	1712.9683	1.61775	1719.8732
$\frac{11}{16}$	1.61603	1706.2923	1.61690	1713.1833	1.61778	1720.0892
$\frac{23}{32}$	1.61605	1706.5075	1.61693	1713.3994	1.61780	1720.3052
$\frac{3}{4}$	1.61608	1706.7227	1.61696	1713.6150	1.61783	1720.5213
$\frac{25}{32}$	1.61611	1706.9378	1.61698	1713.8306	1.61786	1720.7373
$\frac{13}{16}$	1.61614	1707.1530	1.61701	1714.0463	1.61788	1720.9534
$\frac{27}{32}$	1.61616	1707.3682	1.61704	1714.2619	1.61791	1721.1694
$\frac{7}{8}$	1.61619	1707.5834	1.61707	1714.4775	1.61794	1721.3855
$\frac{29}{32}$	1.61622	1707.7987	1.61709	1714.6932	1.61797	1721.6016
$\frac{15}{16}$	1.61625	1708.0139	1.61712	1714.9089	1.61799	1721.8177
$\frac{31}{32}$	1.61627	1708.2292	1.61715	1715.1246	1.61802	1722.0339
1	1.61630	1708.4444	1.61718	1715.3403	1.61805	1722.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61805	1722.2500	1.61802	1729.1736	1.61979	1736.1111
$\frac{1}{32}$	1.61808	1722.4662	1.61895	1729.3902	1.61982	1736.3281
$\frac{1}{16}$	1.61810	1722.6823	1.61897	1729.6068	1.61984	1736.5452
$\frac{3}{32}$	1.61813	1722.8985	1.61900	1729.8234	1.61987	1736.7622
$\frac{1}{8}$	1.61816	1723.1147	1.61903	1730.0400	1.61990	1736.9793
$\frac{5}{32}$	1.61818	1723.3309	1.61906	1730.2567	1.61992	1737.1964
$\frac{3}{16}$	1.61821	1723.5471	1.61908	1730.4733	1.61995	1737.4134
$\frac{7}{32}$	1.61824	1723.7634	1.61911	1730.6900	1.61998	1737.6305
$\frac{1}{4}$	1.61827	1723.9796	1.61914	1730.9067	1.62001	1737.8477
$\frac{9}{32}$	1.61829	1724.1959	1.61916	1731.1234	1.62003	1738.0648
$\frac{5}{16}$	1.61832	1724.4121	1.61919	1731.3401	1.62006	1738.2819
$\frac{11}{32}$	1.61835	1724.6284	1.61922	1731.5568	1.62009	1738.4991
$\frac{3}{8}$	1.61838	1724.8447	1.61925	1731.7735	1.62011	1738.7163
$\frac{13}{32}$	1.61840	1725.0610	1.61927	1731.9903	1.62014	1738.9334
$\frac{7}{16}$	1.61843	1725.2774	1.61930	1732.2071	1.62017	1739.1506
$\frac{15}{32}$	1.61846	1725.4937	1.61933	1732.4238	1.62020	1739.3678
$\frac{1}{2}$	1.61848	1725.7101	1.61935	1732.6406	1.62022	1739.5851
$\frac{17}{32}$	1.61851	1725.9264	1.61938	1732.8574	1.62025	1739.8023
$\frac{9}{16}$	1.61854	1726.1428	1.61941	1733.0742	1.62028	1740.0196
$\frac{19}{32}$	1.61857	1726.3592	1.61944	1733.2911	1.62030	1740.2368
$\frac{5}{8}$	1.61859	1726.5756	1.61946	1733.5079	1.62033	1740.4541
$\frac{21}{32}$	1.61862	1726.7921	1.61949	1733.7248	1.62036	1740.6714
$\frac{11}{16}$	1.61865	1727.0085	1.61952	1733.9417	1.62039	1740.8887
$\frac{23}{32}$	1.61867	1727.2249	1.61954	1734.1585	1.62041	1741.1060
$\frac{3}{4}$	1.61870	1727.4414	1.61957	1734.3754	1.62044	1741.3234
$\frac{25}{32}$	1.61873	1727.6579	1.61960	1734.5923	1.62047	1741.5407
$\frac{13}{16}$	1.61876	1727.8744	1.61963	1734.8093	1.62049	1741.7581
$\frac{27}{32}$	1.61878	1728.0909	1.61965	1735.0262	1.62052	1741.9754
$\frac{7}{8}$	1.61881	1728.3074	1.61968	1735.2432	1.62055	1742.1928
$\frac{29}{32}$	1.61884	1728.5239	1.61971	1735.4601	1.62058	1742.4102
$\frac{15}{16}$	1.61886	1728.7405	1.61973	1735.6771	1.62060	1742.6276
$\frac{31}{32}$	1.61889	1728.9570	1.61976	1735.8941	1.62063	1742.8451
1	1.61892	1729.1736	1.61979	1736.1111	1.62066	1743.0625

Fractions of an Inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62066	1743.0625	1.62152	1750.0278	1.62239	1757.0069
$\frac{1}{32}$	1.62068	1743.2800	1.62155	1750.2457	1.62241	1757.2253
$\frac{1}{16}$	1.62071	1743.4974	1.62158	1750.4636	1.62244	1757.4436
$\frac{3}{32}$	1.62074	1743.7149	1.62160	1750.6815	1.62247	1757.6620
$\frac{1}{8}$	1.62076	1743.9324	1.62163	1750.8994	1.62249	1757.8803
$\frac{5}{32}$	1.62079	1744.1499	1.62166	1751.1174	1.62252	1758.0987
$\frac{3}{16}$	1.62082	1744.3674	1.62168	1751.3353	1.62255	1758.3171
$\frac{7}{32}$	1.62085	1744.5850	1.62171	1751.5533	1.62258	1758.5355
$\frac{1}{4}$	1.62087	1744.8025	1.62174	1751.7713	1.62260	1758.7539
$\frac{9}{32}$	1.62090	1745.0201	1.62177	1751.9893	1.62263	1758.9723
$\frac{5}{16}$	1.62093	1745.2377	1.62179	1752.2073	1.62266	1759.1908
$\frac{11}{32}$	1.62095	1745.4552	1.62182	1752.4253	1.62268	1759.4092
$\frac{3}{8}$	1.62098	1745.6729	1.62185	1752.6433	1.62271	1759.6277
$\frac{13}{32}$	1.62101	1745.8905	1.62187	1752.8614	1.62274	1759.8462
$\frac{7}{16}$	1.62104	1746.1081	1.62190	1753.0795	1.62276	1760.0647
$\frac{15}{32}$	1.62106	1746.3257	1.62193	1753.2975	1.62279	1760.2832
$\frac{1}{2}$	1.62109	1746.5434	1.62195	1753.5156	1.62282	1760.5017
$\frac{17}{32}$	1.62112	1746.7611	1.62198	1753.7337	1.62285	1760.7203
$\frac{9}{16}$	1.62114	1746.9788	1.62201	1753.9519	1.62287	1760.9388
$\frac{19}{32}$	1.62117	1747.1965	1.62204	1754.1700	1.62290	1761.1574
$\frac{5}{8}$	1.62120	1747.4142	1.62206	1754.3881	1.62293	1761.3760
$\frac{21}{32}$	1.62122	1747.6319	1.62209	1754.6063	1.62295	1761.5946
$\frac{11}{16}$	1.62125	1747.8496	1.62212	1754.8245	1.62298	1761.8132
$\frac{23}{32}$	1.62128	1748.0674	1.62214	1755.0426	1.62301	1762.0318
$\frac{3}{4}$	1.62131	1748.2852	1.62217	1755.2609	1.62303	1762.2504
$\frac{25}{32}$	1.62133	1748.5029	1.62220	1755.4791	1.62306	1762.4691
$\frac{13}{16}$	1.62136	1748.7207	1.62222	1755.6973	1.62309	1762.6877
$\frac{27}{32}$	1.62139	1748.9385	1.62225	1755.9155	1.62311	1762.9064
$\frac{7}{8}$	1.62141	1749.1564	1.62228	1756.1338	1.62314	1763.1251
$\frac{29}{32}$	1.62144	1749.3742	1.62231	1756.3521	1.62317	1763.3438
$\frac{15}{16}$	1.62147	1749.5920	1.62233	1756.5703	1.62320	1763.5625
$\frac{31}{32}$	1.62150	1749.8099	1.62236	1756.7886	1.62322	1763.7813
1	1.62152	1750.0278	1.62239	1757.0069	1.62325	1764.0000



Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62325	1764.0000	1.62411	1771.0069	1.62497	1778.0278
$\frac{1}{32}$	1.62328	1764.2188	1.62414	1771.2261	1.62500	1778.2474
$\frac{1}{16}$	1.62330	1764.4375	1.62416	1771.4453	1.62502	1778.4670
$\frac{3}{32}$	1.62333	1764.6563	1.62419	1771.6646	1.62505	1778.6867
$\frac{1}{8}$	1.62336	1764.8751	1.62422	1771.8838	1.62508	1778.9064
$\frac{5}{32}$	1.62338	1765.0939	1.62424	1772.1030	1.62510	1779.1260
$\frac{3}{16}$	1.62341	1765.3127	1.62427	1772.3223	1.62513	1779.3457
$\frac{7}{32}$	1.62344	1765.5316	1.62430	1772.5416	1.62516	1779.5654
$\frac{1}{4}$	1.62346	1765.7504	1.62433	1772.7609	1.62518	1779.7852
$\frac{9}{32}$	1.62349	1765.9693	1.62435	1772.9802	1.62521	1780.0049
$\frac{5}{16}$	1.62352	1766.1882	1.62438	1773.1995	1.62524	1780.2246
$\frac{11}{32}$	1.62355	1766.4071	1.62441	1773.4188	1.62526	1780.4444
$\frac{3}{8}$	1.62357	1766.6260	1.62443	1773.6381	1.62529	1780.6642
$\frac{13}{32}$	1.62360	1766.8449	1.62446	1773.8575	1.62532	1780.8840
$\frac{7}{16}$	1.62363	1767.0638	1.62449	1774.0768	1.62534	1781.1038
$\frac{15}{32}$	1.62365	1767.2828	1.62451	1774.2962	1.62537	1781.3236
$\frac{1}{2}$	1.62368	1767.5017	1.62454	1774.5156	1.62540	1781.5434
$\frac{17}{32}$	1.62371	1767.7207	1.62457	1774.7350	1.62542	1781.7632
$\frac{9}{16}$	1.62373	1767.9397	1.62459	1774.9545	1.62545	1781.9831
$\frac{19}{32}$	1.62376	1768.1587	1.62462	1775.1739	1.62548	1782.2030
$\frac{5}{8}$	1.62379	1768.3777	1.62465	1775.3933	1.62551	1782.4229
$\frac{21}{32}$	1.62381	1768.5967	1.62467	1775.6128	1.62553	1782.6427
$\frac{11}{16}$	1.62384	1768.8158	1.62470	1775.8323	1.62556	1782.8627
$\frac{23}{32}$	1.62387	1769.0348	1.62473	1776.0518	1.62559	1783.0826
$\frac{3}{4}$	1.62390	1769.2539	1.62475	1776.2713	1.62561	1783.3025
$\frac{25}{32}$	1.62392	1769.4730	1.62478	1776.4908	1.62564	1783.5225
$\frac{13}{16}$	1.62395	1769.6921	1.62481	1776.7103	1.62567	1783.7424
$\frac{27}{32}$	1.62398	1769.9112	1.62484	1776.9299	1.62569	1783.9624
$\frac{7}{8}$	1.62400	1770.1303	1.62486	1777.1494	1.62572	1784.1824
$\frac{29}{32}$	1.62403	1770.3495	1.62489	1777.3690	1.62575	1784.4024
$\frac{15}{16}$	1.62406	1770.5686	1.62492	1777.5886	1.62577	1784.6224
$\frac{31}{32}$	1.62408	1770.7878	1.62494	1777.8082	1.62580	1784.8425
1	1.62411	1771.0069	1.62497	1778.0278	1.62583	1785.0625

Fractions of an inch	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62583	1785.0625	1.62668	1792.1111	1.62754	1799.1736
$\frac{1}{32}$	1.62585	1785.2826	1.62671	1792.3316	1.62756	1799.3945
$\frac{1}{16}$	1.62588	1785.5026	1.62674	1792.5521	1.62759	1799.6155
$\frac{3}{32}$	1.62591	1785.7227	1.62676	1792.7726	1.62762	1799.8364
$\frac{1}{8}$	1.62593	1785.9428	1.62679	1792.9932	1.62764	1800.0574
$\frac{5}{32}$	1.62596	1786.1629	1.62682	1793.2137	1.62767	1800.2784
$\frac{3}{16}$	1.62599	1786.3831	1.62684	1793.4343	1.62770	1800.4994
$\frac{7}{32}$	1.62601	1786.6032	1.62687	1793.6548	1.62772	1800.7204
$\frac{1}{4}$	1.62604	1786.8234	1.62690	1793.8754	1.62775	1800.9414
$\frac{9}{32}$	1.62607	1787.0435	1.62692	1794.0960	1.62778	1801.1624
$\frac{5}{16}$	1.62609	1787.2637	1.62695	1794.3167	1.62780	1801.3835
$\frac{11}{32}$	1.62612	1787.4839	1.62698	1794.5373	1.62783	1801.6046
$\frac{3}{8}$	1.62615	1787.7041	1.62700	1794.7579	1.62786	1801.8256
$\frac{13}{32}$	1.62617	1787.9243	1.62703	1794.9786	1.62788	1802.0467
$\frac{7}{16}$	1.62620	1788.1446	1.62706	1795.1992	1.62791	1802.2678
$\frac{15}{32}$	1.62623	1788.3648	1.62708	1795.4199	1.62794	1802.4888
$\frac{1}{2}$	1.62625	1788.5851	1.62711	1795.6406	1.62796	1802.7101
$\frac{17}{32}$	1.62628	1788.8053	1.62714	1795.8613	1.62799	1802.9315
$\frac{9}{16}$	1.62631	1789.0256	1.62716	1796.0821	1.62802	1803.1524
$\frac{19}{32}$	1.62634	1789.2459	1.62719	1796.3028	1.62804	1803.3735
$\frac{5}{8}$	1.62636	1789.4663	1.62722	1796.5235	1.62807	1803.5947
$\frac{21}{32}$	1.62639	1789.6866	1.62724	1796.7443	1.62810	1803.8154
$\frac{11}{16}$	1.62642	1789.9069	1.62727	1796.9651	1.62812	1804.0371
$\frac{23}{32}$	1.62644	1790.1273	1.62730	1797.1859	1.62815	1804.2584
$\frac{3}{4}$	1.62647	1790.3477	1.62732	1797.4067	1.62818	1804.4794
$\frac{25}{32}$	1.62650	1790.5680	1.62735	1797.6275	1.62820	1804.7001
$\frac{13}{16}$	1.62652	1790.7884	1.62738	1797.8483	1.62823	1804.9222
$\frac{27}{32}$	1.62655	1791.0089	1.62740	1798.0692	1.62826	1805.1433
$\frac{7}{8}$	1.62658	1791.2293	1.62743	1798.2900	1.62828	1805.3647
$\frac{29}{32}$	1.62660	1791.4497	1.62746	1798.5109	1.62831	1805.5860
$\frac{15}{16}$	1.62663	1791.6702	1.62748	1798.7318	1.62834	1805.8077
$\frac{31}{32}$	1.62666	1791.8906	1.62751	1798.9527	1.62836	1806.0288
1	1.62668	1792.1111	1.62754	1799.1736	1.62839	1806.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62839	1806.2500	1.62924	1813.3403	1.63009	1820.4444
$\frac{1}{32}$	1.62842	1806.4714	1.62927	1813.5621	1.63012	1820.6667
$\frac{1}{16}$	1.62844	1806.6927	1.62929	1813.7839	1.63014	1820.8889
$\frac{3}{32}$	1.62847	1806.9141	1.62932	1814.0057	1.63017	1821.1112
$\frac{1}{8}$	1.62850	1807.1355	1.62935	1814.2275	1.63019	1821.3334
$\frac{5}{32}$	1.62852	1807.3569	1.62937	1814.4494	1.63022	1821.5557
$\frac{3}{16}$	1.62855	1807.5784	1.62940	1814.6713	1.63025	1821.7780
$\frac{7}{32}$	1.62858	1807.7998	1.62943	1814.8931	1.63027	1822.0003
$\frac{1}{4}$	1.62860	1808.0213	1.62945	1815.1150	1.63030	1822.2227
$\frac{9}{32}$	1.62863	1808.2427	1.62948	1815.3369	1.63033	1822.4450
$\frac{5}{16}$	1.62865	1808.4642	1.62951	1815.5588	1.63035	1822.6673
$\frac{11}{32}$	1.62868	1808.6857	1.62953	1815.7808	1.63038	1822.8897
$\frac{3}{8}$	1.62871	1808.9072	1.62956	1816.0027	1.63041	1823.1121
$\frac{13}{32}$	1.62873	1809.1288	1.62958	1816.2247	1.63043	1823.3345
$\frac{7}{16}$	1.62876	1809.3503	1.62961	1816.4466	1.63046	1823.5569
$\frac{15}{32}$	1.62879	1809.5718	1.62964	1816.6686	1.63049	1823.7793
$\frac{1}{2}$	1.62881	1809.7934	1.62966	1816.8906	1.63051	1824.0017
$\frac{17}{32}$	1.62884	1810.0150	1.62969	1817.1126	1.63054	1824.2242
$\frac{9}{16}$	1.62887	1810.2366	1.62972	1817.3347	1.63057	1824.4466
$\frac{19}{32}$	1.62889	1810.4582	1.62974	1817.5567	1.63059	1824.6691
$\frac{5}{8}$	1.62892	1810.6798	1.62977	1817.7788	1.63062	1824.8916
$\frac{21}{32}$	1.62895	1810.9014	1.62980	1818.0008	1.63065	1825.1141
$\frac{11}{16}$	1.62897	1811.1231	1.62982	1818.2229	1.63067	1825.3366
$\frac{23}{32}$	1.62900	1811.3447	1.62985	1818.4450	1.63070	1825.5591
$\frac{3}{4}$	1.62903	1811.5664	1.62988	1818.6671	1.63072	1825.7817
$\frac{25}{32}$	1.62905	1811.7881	1.62990	1818.8892	1.63075	1826.0042
$\frac{13}{16}$	1.62908	1812.0098	1.62993	1819.1114	1.63078	1826.2268
$\frac{27}{32}$	1.62911	1812.2315	1.62996	1819.3335	1.63080	1826.4494
$\frac{7}{8}$	1.62913	1812.4532	1.62998	1819.5557	1.63083	1826.6720
$\frac{29}{32}$	1.62916	1812.6750	1.63001	1819.7778	1.63086	1826.8946
$\frac{15}{16}$	1.62919	1812.8967	1.63004	1820.0000	1.63088	1827.1172
$\frac{31}{32}$	1.62921	1813.1185	1.63006	1820.2222	1.63091	1827.3399
1	1.62924	1813.3403	1.63009	1820.4444	1.63094	1827.5625

Fractions of an Inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63094	1827.5625	1.63178	1834.6944	1.63263	1841.8408
$\frac{1}{32}$	1.63096	1827.7852	1.63181	1834.9175	1.63265	1842.0638
$\frac{1}{16}$	1.63099	1828.0078	1.63183	1835.1407	1.63268	1842.2874
$\frac{3}{32}$	1.63102	1828.2305	1.63186	1835.3638	1.63271	1842.5109
$\frac{1}{8}$	1.63104	1828.4532	1.63189	1835.5869	1.63273	1842.7345
$\frac{5}{32}$	1.63107	1828.6760	1.63191	1835.8101	1.63276	1842.9581
$\frac{3}{16}$	1.63109	1828.8987	1.63194	1836.0332	1.63278	1843.1817
$\frac{7}{32}$	1.63112	1829.1214	1.63197	1836.2564	1.63281	1843.4053
$\frac{1}{4}$	1.63115	1829.3442	1.63199	1836.4796	1.63284	1843.6289
$\frac{9}{32}$	1.63117	1829.5670	1.63202	1836.7028	1.63286	1843.8525
$\frac{5}{16}$	1.63120	1829.7897	1.63205	1836.9260	1.63289	1844.0762
$\frac{11}{32}$	1.63123	1830.0125	1.63207	1837.1493	1.63292	1844.2999
$\frac{3}{8}$	1.63125	1830.2354	1.63210	1837.3725	1.63294	1844.5235
$\frac{13}{32}$	1.63128	1830.4582	1.63212	1837.5958	1.63297	1844.7472
$\frac{7}{16}$	1.63131	1830.6810	1.63215	1837.8190	1.63299	1844.9709
$\frac{15}{32}$	1.63133	1830.9039	1.63218	1838.0423	1.63302	1845.1947
$\frac{1}{2}$	1.63136	1831.1267	1.63220	1838.2656	1.63305	1845.4184
$\frac{17}{32}$	1.63139	1831.3496	1.63223	1838.4889	1.63307	1845.6422
$\frac{9}{16}$	1.63141	1831.5725	1.63226	1838.7123	1.63310	1845.8659
$\frac{19}{32}$	1.63144	1831.7954	1.63228	1838.9356	1.63313	1846.0897
$\frac{5}{8}$	1.63146	1832.0183	1.63231	1839.1590	1.63315	1846.3135
$\frac{21}{32}$	1.63149	1832.2413	1.63234	1839.3823	1.63318	1846.5373
$\frac{11}{16}$	1.63152	1832.4642	1.63236	1839.6057	1.63321	1846.7611
$\frac{23}{32}$	1.63154	1832.6872	1.63239	1839.8291	1.63323	1846.9849
$\frac{3}{4}$	1.63157	1832.9102	1.63242	1840.0525	1.63326	1847.2088
$\frac{25}{32}$	1.63160	1833.1331	1.63244	1840.2759	1.63328	1847.4326
$\frac{13}{16}$	1.63162	1833.3561	1.63247	1840.4994	1.63331	1847.6565
$\frac{27}{32}$	1.63165	1833.5792	1.63249	1840.7228	1.63334	1847.8804
$\frac{7}{8}$	1.63168	1833.8022	1.63252	1840.9463	1.63336	1848.1043
$\frac{29}{32}$	1.63170	1834.0252	1.63255	1841.1698	1.63339	1848.3282
$\frac{15}{16}$	1.63173	1834.2483	1.63257	1841.3933	1.63342	1848.5521
$\frac{31}{32}$	1.63176	1834.4714	1.63260	1841.6168	1.63344	1848.7760
1	1.63178	1834.6944	1.63263	1841.8403	1.63347	1849.0000

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63347	1849.0000	1.63431	1856.1736	1.63515	1863.3611
$\frac{1}{32}$	1.63349	1849.2240	1.63434	1856.3980	1.63517	1863.5859
$\frac{1}{16}$	1.63352	1849.4479	1.63436	1856.6224	1.63520	1863.8108
$\frac{3}{32}$	1.63355	1849.6719	1.63439	1856.8468	1.63523	1864.0357
$\frac{1}{8}$	1.63357	1849.8959	1.63441	1857.0713	1.63525	1864.2605
$\frac{5}{32}$	1.63360	1850.1200	1.63444	1857.2957	1.63528	1864.4854
$\frac{3}{16}$	1.63363	1850.3440	1.63447	1857.5202	1.63531	1864.7103
$\frac{1}{4}$	1.63365	1850.5680	1.63449	1857.7447	1.63533	1864.9352
$\frac{5}{16}$	1.63368	1850.7921	1.63452	1857.9692	1.63536	1865.1602
$\frac{9}{32}$	1.63371	1851.0162	1.63455	1858.1937	1.63538	1865.3851
$\frac{5}{16}$	1.63373	1851.2403	1.63457	1858.4182	1.63541	1865.6101
$\frac{11}{32}$	1.63376	1851.4644	1.63460	1858.6427	1.63544	1865.8350
$\frac{3}{8}$	1.63378	1851.6885	1.63462	1858.8673	1.63546	1866.0600
$\frac{13}{32}$	1.63381	1851.9126	1.63465	1859.0919	1.63549	1866.2850
$\frac{7}{16}$	1.63384	1852.1367	1.63468	1859.3164	1.63552	1866.5100
$\frac{15}{32}$	1.63386	1852.3609	1.63470	1859.5410	1.63554	1866.7350
$\frac{1}{2}$	1.63389	1852.5851	1.63473	1859.7656	1.63557	1866.9601
$\frac{17}{32}$	1.63392	1852.8093	1.63476	1859.9902	1.63559	1867.1851
$\frac{9}{16}$	1.63394	1853.0334	1.63478	1860.2149	1.63562	1867.4102
$\frac{19}{32}$	1.63397	1853.2577	1.63481	1860.4395	1.63565	1867.6353
$\frac{5}{8}$	1.63399	1853.4819	1.63483	1860.6642	1.63567	1867.8604
$\frac{21}{32}$	1.63402	1853.7061	1.63486	1860.8888	1.63570	1868.0855
$\frac{11}{16}$	1.63405	1853.9304	1.63489	1861.1135	1.63572	1868.3106
$\frac{23}{32}$	1.63407	1854.1546	1.63491	1861.3382	1.63575	1868.5357
$\frac{3}{4}$	1.63410	1854.3789	1.63494	1861.5629	1.63578	1868.7609
$\frac{25}{32}$	1.63413	1854.6032	1.63497	1861.7877	1.63580	1868.9860
$\frac{13}{16}$	1.63415	1854.8275	1.63499	1862.0124	1.63583	1869.2112
$\frac{27}{32}$	1.63418	1855.0518	1.63502	1862.2371	1.63586	1869.4364
$\frac{7}{8}$	1.63420	1855.2761	1.63504	1862.4619	1.63588	1869.6616
$\frac{29}{32}$	1.63423	1855.5005	1.63507	1862.6867	1.63591	1869.8868
$\frac{15}{16}$	1.63426	1855.7249	1.63510	1862.9115	1.63593	1870.1120
$\frac{31}{32}$	1.63428	1855.9492	1.63512	1863.1363	1.63596	1870.3372
1	1.63431	1856.1736	1.63515	1863.3611	1.63599	1870.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63599	1870.5625	1.63682	1877.7778	1.63766	1885.0069
$\frac{1}{32}$	1.63601	1870.7878	1.63685	1878.0035	1.63768	1885.2331
$\frac{1}{16}$	1.63604	1871.0130	1.63687	1878.2292	1.63771	1885.4592
$\frac{3}{32}$	1.63606	1871.2383	1.63690	1878.4549	1.63773	1885.6854
$\frac{1}{8}$	1.63609	1871.4637	1.63693	1878.6807	1.63776	1885.9116
$\frac{5}{32}$	1.63612	1871.6890	1.63695	1878.9064	1.63779	1886.1378
$\frac{3}{16}$	1.63614	1871.9143	1.63698	1879.1322	1.63781	1886.3640
$\frac{1}{4}$	1.63617	1872.1397	1.63700	1879.3580	1.63784	1886.5902
$\frac{5}{16}$	1.63620	1872.3650	1.63703	1879.5838	1.63786	1886.8164
$\frac{3}{8}$	1.63622	1872.5904	1.63706	1879.8096	1.63789	1887.0426
$\frac{1}{2}$	1.63625	1872.8158	1.63708	1880.0354	1.63792	1887.2689
$\frac{1}{4}$	1.63627	1873.0412	1.63711	1880.2612	1.63794	1887.4952
$\frac{5}{8}$	1.63630	1873.2666	1.63714	1880.4871	1.63797	1887.7215
$\frac{3}{4}$	1.63633	1873.4920	1.63716	1880.7130	1.63799	1887.9478
$\frac{1}{2}$	1.63635	1873.7175	1.63719	1880.9388	1.63802	1888.1741
$\frac{5}{8}$	1.63638	1873.9429	1.63721	1881.1647	1.63805	1888.4004
$\frac{3}{4}$	1.63640	1874.1684	1.63724	1881.3906	1.63807	1888.6267
$\frac{1}{2}$	1.63643	1874.3939	1.63727	1881.6165	1.63810	1888.8531
$\frac{5}{8}$	1.63646	1874.6194	1.63729	1881.8425	1.63813	1889.0795
$\frac{3}{4}$	1.63648	1874.8449	1.63732	1882.0684	1.63815	1889.3058
$\frac{1}{2}$	1.63651	1875.0704	1.63734	1882.2944	1.63818	1889.5322
$\frac{5}{8}$	1.63653	1875.2960	1.63737	1882.5204	1.63820	1889.7586
$\frac{3}{4}$	1.63656	1875.5215	1.63740	1882.7463	1.63823	1889.9851
$\frac{1}{2}$	1.63659	1875.7471	1.63742	1882.9723	1.63826	1890.2115
$\frac{5}{8}$	1.63661	1875.9727	1.63745	1883.1984	1.63828	1890.4379
$\frac{3}{4}$	1.63664	1876.1982	1.63747	1883.4244	1.63831	1890.6644
$\frac{1}{2}$	1.63667	1876.4239	1.63750	1883.6504	1.63833	1890.8909
$\frac{5}{8}$	1.63669	1876.6495	1.63753	1883.8765	1.63836	1891.1174
$\frac{3}{4}$	1.63672	1876.8751	1.63755	1884.1025	1.63839	1891.3439
$\frac{1}{2}$	1.63674	1877.1008	1.63758	1884.3286	1.63841	1891.5704
$\frac{5}{8}$	1.63677	1877.3264	1.63760	1884.5547	1.63844	1891.7969
$\frac{3}{4}$	1.63680	1877.5521	1.63763	1884.7808	1.63846	1892.0234
1	1.63682	1877.7778	1.63766	1885.0069	1.63849	1892.2500

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61278	1681.0000	1.61367	1687.8403	1.61455	1694.6944
$\frac{1}{32}$	1.61281	1681.2135	1.61369	1688.0543	1.61457	1694.9089
$\frac{1}{16}$	1.61284	1681.4271	1.61372	1688.2683	1.61460	1695.1233
$\frac{3}{32}$	1.61287	1681.6407	1.61375	1688.4823	1.61463	1695.3377
$\frac{1}{8}$	1.61289	1681.8543	1.61378	1688.6963	1.61466	1695.5522
$\frac{5}{32}$	1.61292	1682.0679	1.61380	1688.9103	1.61468	1695.7667
$\frac{3}{16}$	1.61295	1682.2815	1.61383	1689.1244	1.61471	1695.9811
$\frac{7}{32}$	1.61298	1682.4951	1.61386	1689.3384	1.61474	1696.1956
$\frac{1}{4}$	1.61300	1682.7088	1.61389	1689.5525	1.61477	1696.4102
$\frac{9}{32}$	1.61303	1682.9224	1.61391	1689.7666	1.61479	1696.6247
$\frac{5}{16}$	1.61306	1683.1361	1.61394	1689.9807	1.61482	1696.8392
$\frac{11}{32}$	1.61309	1683.3498	1.61397	1690.1948	1.61485	1697.0538
$\frac{3}{8}$	1.61311	1683.5635	1.61400	1690.4090	1.61488	1697.2683
$\frac{13}{32}$	1.61314	1683.7772	1.61402	1690.6231	1.61490	1697.4829
$\frac{7}{16}$	1.61317	1683.9909	1.61405	1690.8373	1.61493	1697.6975
$\frac{15}{32}$	1.61320	1684.2047	1.61408	1691.0514	1.61496	1697.9121
$\frac{1}{2}$	1.61322	1684.4184	1.61411	1691.2656	1.61499	1698.1267
$\frac{17}{32}$	1.61325	1684.6322	1.61413	1691.4798	1.61501	1698.3414
$\frac{9}{16}$	1.61328	1684.8459	1.61416	1691.6940	1.61504	1698.5560
$\frac{19}{32}$	1.61331	1685.0597	1.61419	1691.9083	1.61507	1698.7707
$\frac{5}{8}$	1.61334	1685.2735	1.61422	1692.1225	1.61509	1698.9854
$\frac{21}{32}$	1.61336	1685.4874	1.61424	1692.3368	1.61512	1699.2000
$\frac{11}{16}$	1.61339	1685.7012	1.61427	1692.5510	1.61515	1699.4147
$\frac{23}{32}$	1.61342	1685.9150	1.61430	1692.7653	1.61518	1699.6295
$\frac{3}{4}$	1.61345	1686.1289	1.61433	1692.9796	1.61520	1699.8442
$\frac{25}{32}$	1.61347	1686.3428	1.61435	1693.1939	1.61523	1700.0589
$\frac{13}{16}$	1.61350	1686.5567	1.61438	1693.4082	1.61526	1700.2737
$\frac{27}{32}$	1.61353	1686.7706	1.61441	1693.6226	1.61529	1700.4885
$\frac{7}{8}$	1.61356	1686.9845	1.61444	1693.8369	1.61531	1700.7032
$\frac{29}{32}$	1.61358	1687.1984	1.61446	1694.0513	1.61534	1700.9180
$\frac{15}{16}$	1.61361	1687.4124	1.61449	1694.2657	1.61537	1701.1328
$\frac{31}{32}$	1.61364	1687.6263	1.61452	1694.4800	1.61540	1701.3477
1	1.61367	1687.8403	1.61455	1694.6944	1.61542	1701.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61542	1701.5625	1.61630	1708.4444	1.61718	1715.3403
$\frac{1}{32}$	1.61545	1701.7774	1.61633	1708.6597	1.61720	1715.5560
$\frac{1}{16}$	1.61548	1701.9922	1.61636	1708.8750	1.61723	1715.7717
$\frac{3}{32}$	1.61551	1702.2071	1.61638	1709.0903	1.61726	1715.9875
$\frac{1}{8}$	1.61553	1702.4220	1.61641	1709.3057	1.61728	1716.2032
$\frac{5}{32}$	1.61556	1702.6369	1.61644	1709.5210	1.61731	1716.4190
$\frac{3}{16}$	1.61559	1702.8518	1.61646	1709.7364	1.61734	1716.6348
$\frac{7}{32}$	1.61562	1703.0667	1.61649	1709.9517	1.61737	1716.8506
$\frac{1}{4}$	1.61564	1703.2817	1.61652	1710.1671	1.61739	1717.0664
$\frac{9}{32}$	1.61567	1703.4966	1.61655	1710.3825	1.61742	1717.2822
$\frac{5}{16}$	1.61570	1703.7116	1.61657	1710.5979	1.61745	1717.4981
$\frac{11}{32}$	1.61573	1703.9266	1.61660	1710.8133	1.61748	1717.7139
$\frac{3}{8}$	1.61575	1704.1416	1.61663	1711.0288	1.61750	1717.9298
$\frac{13}{32}$	1.61578	1704.3566	1.61666	1711.2442	1.61753	1718.1457
$\frac{7}{16}$	1.61581	1704.5716	1.61668	1711.4597	1.61756	1718.3616
$\frac{15}{32}$	1.61584	1704.7867	1.61671	1711.6751	1.61758	1718.5775
$\frac{1}{2}$	1.61586	1705.0017	1.61674	1711.8906	1.61761	1718.7934
$\frac{17}{32}$	1.61589	1705.2168	1.61677	1712.1061	1.61764	1719.0093
$\frac{9}{16}$	1.61592	1705.4319	1.61679	1712.3216	1.61767	1719.2253
$\frac{19}{32}$	1.61594	1705.6470	1.61682	1712.5372	1.61769	1719.4413
$\frac{5}{8}$	1.61597	1705.8621	1.61685	1712.7527	1.61772	1719.6572
$\frac{21}{32}$	1.61600	1706.0772	1.61687	1712.9683	1.61775	1719.8732
$\frac{11}{16}$	1.61603	1706.2923	1.61690	1713.1838	1.61778	1720.0892
$\frac{23}{32}$	1.61605	1706.5075	1.61693	1713.3994	1.61780	1720.3052
$\frac{3}{4}$	1.61608	1706.7227	1.61696	1713.6150	1.61783	1720.5213
$\frac{25}{32}$	1.61611	1706.9378	1.61698	1713.8306	1.61786	1720.7373
$\frac{13}{16}$	1.61614	1707.1530	1.61701	1714.0463	1.61788	1720.9534
$\frac{27}{32}$	1.61616	1707.3682	1.61704	1714.2619	1.61791	1721.1694
$\frac{7}{8}$	1.61619	1707.5834	1.61707	1714.4775	1.61794	1721.3855
$\frac{29}{32}$	1.61622	1707.7987	1.61709	1714.6932	1.61797	1721.6016
$\frac{15}{16}$	1.61625	1708.0139	1.61712	1714.9089	1.61799	1721.8177
$\frac{31}{32}$	1.61627	1708.2292	1.61715	1715.1246	1.61802	1722.0339
1	1.61630	1708.4444	1.61718	1715.3403	1.61805	1722.2500



Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.61805	1722.2500	1.61802	1729.1736	1.61979	1736.1111
$\frac{1}{32}$	1.61808	1722.4662	1.61805	1729.3902	1.61982	1736.3281
$\frac{1}{16}$	1.61810	1722.6823	1.61897	1729.6068	1.61984	1736.5452
$\frac{3}{32}$	1.61813	1722.8985	1.61900	1729.8234	1.61987	1736.7622
$\frac{1}{8}$	1.61816	1723.1147	1.61903	1730.0400	1.61990	1736.9793
$\frac{5}{32}$	1.61818	1723.3309	1.61906	1730.2567	1.61992	1737.1964
$\frac{3}{16}$	1.61821	1723.5471	1.61908	1730.4733	1.61995	1737.4134
$\frac{7}{32}$	1.61824	1723.7634	1.61911	1730.6900	1.61998	1737.6305
$\frac{1}{4}$	1.61827	1723.9796	1.61914	1730.9067	1.62001	1737.8477
$\frac{9}{32}$	1.61829	1724.1959	1.61916	1731.1234	1.62003	1738.0648
$\frac{5}{16}$	1.61832	1724.4121	1.61919	1731.3401	1.62006	1738.2819
$\frac{11}{32}$	1.61835	1724.6284	1.61922	1731.5568	1.62009	1738.4991
$\frac{3}{8}$	1.61838	1724.8447	1.61925	1731.7735	1.62011	1738.7163
$\frac{13}{32}$	1.61840	1725.0610	1.61927	1731.9903	1.62014	1738.9334
$\frac{7}{16}$	1.61843	1725.2774	1.61930	1732.2071	1.62017	1739.1506
$\frac{15}{32}$	1.61846	1725.4937	1.61933	1732.4238	1.62020	1739.3678
$\frac{1}{2}$	1.61848	1725.7101	1.61935	1732.6406	1.62022	1739.5851
$\frac{17}{32}$	1.61851	1725.9264	1.61938	1732.8574	1.62025	1739.8023
$\frac{9}{16}$	1.61854	1726.1428	1.61941	1733.0742	1.62028	1740.0196
$\frac{19}{32}$	1.61857	1726.3592	1.61944	1733.2911	1.62030	1740.2368
$\frac{5}{8}$	1.61859	1726.5756	1.61946	1733.5079	1.62033	1740.4541
$\frac{21}{32}$	1.61862	1726.7921	1.61949	1733.7248	1.62036	1740.6714
$\frac{11}{16}$	1.61865	1727.0085	1.61952	1733.9417	1.62039	1740.8887
$\frac{23}{32}$	1.61867	1727.2249	1.61954	1734.1585	1.62041	1741.1060
$\frac{3}{4}$	1.61870	1727.4414	1.61957	1734.3754	1.62044	1741.3234
$\frac{25}{32}$	1.61873	1727.6579	1.61960	1734.5923	1.62047	1741.5407
$\frac{13}{16}$	1.61876	1727.8744	1.61963	1734.8093	1.62049	1741.7581
$\frac{27}{32}$	1.61878	1728.0909	1.61965	1735.0262	1.62052	1741.9754
$\frac{7}{8}$	1.61881	1728.3074	1.61968	1735.2432	1.62055	1742.1928
$\frac{29}{32}$	1.61884	1728.5239	1.61971	1735.4601	1.62058	1742.4102
$\frac{15}{16}$	1.61886	1728.7405	1.61973	1735.6771	1.62060	1742.6276
$\frac{31}{32}$	1.61889	1728.9570	1.61976	1735.8941	1.62063	1742.8451
1	1.61892	1729.1736	1.61979	1736.1111	1.62066	1743.0625

Fractions of an Inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62066	1743.0625	1.62152	1750.0278	1.62239	1757.0069
$\frac{1}{32}$	1.62068	1743.2800	1.62155	1750.2457	1.62241	1757.2253
$\frac{1}{16}$	1.62071	1743.4974	1.62158	1750.4636	1.62244	1757.4436
$\frac{3}{32}$	1.62074	1743.7149	1.62160	1750.6815	1.62247	1757.6620
$\frac{1}{8}$	1.62076	1743.9324	1.62163	1750.8994	1.62249	1757.8803
$\frac{5}{32}$	1.62079	1744.1499	1.62166	1751.1174	1.62252	1758.0987
$\frac{3}{16}$	1.62082	1744.3674	1.62168	1751.3353	1.62255	1758.3171
$\frac{7}{32}$	1.62085	1744.5850	1.62171	1751.5533	1.62258	1758.5355
$\frac{1}{4}$	1.62087	1744.8025	1.62174	1751.7713	1.62260	1758.7539
$\frac{9}{32}$	1.62090	1745.0201	1.62177	1751.9893	1.62263	1758.9723
$\frac{5}{16}$	1.62093	1745.2377	1.62179	1752.2073	1.62266	1759.1908
$\frac{11}{32}$	1.62095	1745.4552	1.62182	1752.4253	1.62268	1759.4092
$\frac{3}{8}$	1.62098	1745.6729	1.62185	1752.6433	1.62271	1759.6277
$\frac{13}{32}$	1.62101	1745.8905	1.62187	1752.8614	1.62274	1759.8462
$\frac{7}{16}$	1.62104	1746.1081	1.62190	1753.0795	1.62276	1760.0647
$\frac{15}{32}$	1.62106	1746.3257	1.62193	1753.2975	1.62279	1760.2832
$\frac{1}{2}$	1.62109	1746.5434	1.62195	1753.5156	1.62282	1760.5017
$\frac{17}{32}$	1.62112	1746.7611	1.62198	1753.7337	1.62285	1760.7203
$\frac{9}{16}$	1.62114	1746.9788	1.62201	1753.9519	1.62287	1760.9388
$\frac{19}{32}$	1.62117	1747.1965	1.62204	1754.1700	1.62290	1761.1574
$\frac{5}{8}$	1.62120	1747.4142	1.62206	1754.3881	1.62293	1761.3760
$\frac{21}{32}$	1.62122	1747.6319	1.62209	1754.6063	1.62295	1761.5946
$\frac{11}{16}$	1.62125	1747.8496	1.62212	1754.8245	1.62298	1761.8132
$\frac{23}{32}$	1.62128	1748.0674	1.62214	1755.0426	1.62301	1762.0318
$\frac{3}{4}$	1.62131	1748.2852	1.62217	1755.2609	1.62303	1762.2504
$\frac{25}{32}$	1.62133	1748.5029	1.62220	1755.4791	1.62306	1762.4691
$\frac{13}{16}$	1.62136	1748.7207	1.62222	1755.6973	1.62309	1762.6877
$\frac{27}{32}$	1.62139	1748.9385	1.62225	1755.9155	1.62311	1762.9064
$\frac{7}{8}$	1.62141	1749.1564	1.62228	1756.1338	1.62314	1763.1251
$\frac{29}{32}$	1.62144	1749.3742	1.62231	1756.3521	1.62317	1763.3438
$\frac{15}{16}$	1.62147	1749.5920	1.62233	1756.5703	1.62320	1763.5625
$\frac{31}{32}$	1.62150	1749.8099	1.62236	1756.7886	1.62322	1763.7813
1	1.62152	1750.0278	1.62239	1757.0069	1.62325	1764.0000

Fractions of an Inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62325	1764.0000	1.62411	1771.0069	1.62497	1778.0278
$\frac{1}{32}$	1.62328	1764.2188	1.62414	1771.2261	1.62500	1778.2474
$\frac{1}{16}$	1.62330	1764.4375	1.62416	1771.4453	1.62502	1778.4670
$\frac{3}{32}$	1.62333	1764.6563	1.62419	1771.6646	1.62505	1778.6867
$\frac{1}{8}$	1.62336	1764.8751	1.62422	1771.8838	1.62508	1778.9064
$\frac{5}{32}$	1.62338	1765.0939	1.62424	1772.1030	1.62510	1779.1260
$\frac{3}{16}$	1.62341	1765.3127	1.62427	1772.3223	1.62513	1779.3457
$\frac{7}{32}$	1.62344	1765.5316	1.62430	1772.5416	1.62516	1779.5654
$\frac{1}{4}$	1.62346	1765.7504	1.62433	1772.7609	1.62518	1779.7852
$\frac{9}{32}$	1.62349	1765.9693	1.62435	1772.9802	1.62521	1780.0049
$\frac{5}{16}$	1.62352	1766.1882	1.62438	1773.1995	1.62524	1780.2246
$\frac{11}{32}$	1.62355	1766.4071	1.62441	1773.4188	1.62526	1780.4444
$\frac{3}{8}$	1.62357	1766.6260	1.62443	1773.6381	1.62529	1780.6642
$\frac{13}{32}$	1.62360	1766.8449	1.62446	1773.8575	1.62532	1780.8840
$\frac{7}{16}$	1.62363	1767.0638	1.62449	1774.0768	1.62534	1781.1038
$\frac{15}{32}$	1.62365	1767.2828	1.62451	1774.2962	1.62537	1781.3236
$\frac{1}{2}$	1.62368	1767.5017	1.62454	1774.5156	1.62540	1781.5434
$\frac{17}{32}$	1.62371	1767.7207	1.62457	1774.7350	1.62542	1781.7632
$\frac{9}{16}$	1.62373	1767.9397	1.62459	1774.9545	1.62545	1781.9831
$\frac{19}{32}$	1.62376	1768.1587	1.62462	1775.1739	1.62548	1782.2030
$\frac{5}{8}$	1.62379	1768.3777	1.62465	1775.3933	1.62551	1782.4229
$\frac{21}{32}$	1.62381	1768.5967	1.62467	1775.6128	1.62553	1782.6427
$\frac{11}{16}$	1.62384	1768.8158	1.62470	1775.8323	1.62556	1782.8627
$\frac{23}{32}$	1.62387	1769.0348	1.62473	1776.0518	1.62559	1783.0826
$\frac{3}{4}$	1.62390	1769.2539	1.62475	1776.2713	1.62561	1783.3025
$\frac{25}{32}$	1.62392	1769.4730	1.62478	1776.4908	1.62564	1783.5225
$\frac{13}{16}$	1.62395	1769.6921	1.62481	1776.7103	1.62567	1783.7424
$\frac{27}{32}$	1.62398	1769.9112	1.62484	1776.9299	1.62569	1783.9624
$\frac{7}{8}$	1.62400	1770.1303	1.62486	1777.1494	1.62572	1784.1824
$\frac{29}{32}$	1.62403	1770.3495	1.62489	1777.3690	1.62575	1784.4024
$\frac{15}{16}$	1.62406	1770.5686	1.62492	1777.5886	1.62577	1784.6224
$\frac{31}{32}$	1.62408	1770.7878	1.62494	1777.8082	1.62580	1784.8425
1	1.62411	1771.0069	1.62497	1778.0278	1.62583	1785.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62583	1785.0625	1.62668	1792.1111	1.62754	1799.1738
$\frac{1}{32}$	1.62585	1785.2828	1.62671	1792.3316	1.62756	1799.3942
$\frac{1}{16}$	1.62588	1785.5028	1.62674	1792.5521	1.62759	1799.6152
$\frac{3}{32}$	1.62591	1785.7227	1.62676	1792.7726	1.62762	1799.8364
$\frac{1}{8}$	1.62593	1785.9428	1.62679	1792.9932	1.62764	1800.0574
$\frac{5}{32}$	1.62596	1786.1629	1.62682	1793.2137	1.62767	1800.2784
$\frac{3}{16}$	1.62599	1786.3831	1.62684	1793.4343	1.62770	1800.4994
$\frac{7}{32}$	1.62601	1786.6032	1.62687	1793.6548	1.62772	1800.7204
$\frac{1}{4}$	1.62604	1786.8234	1.62690	1793.8754	1.62775	1800.9414
$\frac{9}{32}$	1.62607	1787.0435	1.62692	1794.0960	1.62778	1801.1624
$\frac{5}{16}$	1.62609	1787.2637	1.62695	1794.3167	1.62780	1801.3835
$\frac{11}{32}$	1.62612	1787.4839	1.62698	1794.5373	1.62783	1801.6046
$\frac{3}{8}$	1.62615	1787.7041	1.62700	1794.7579	1.62786	1801.8256
$\frac{13}{32}$	1.62617	1787.9243	1.62703	1794.9786	1.62788	1802.0467
$\frac{7}{16}$	1.62620	1788.1446	1.62706	1795.1992	1.62791	1802.2678
$\frac{15}{32}$	1.62623	1788.3648	1.62708	1795.4199	1.62794	1802.4888
$\frac{1}{2}$	1.62625	1788.5851	1.62711	1795.6406	1.62796	1802.7101
$\frac{17}{32}$	1.62628	1788.8053	1.62714	1795.8613	1.62799	1802.9315
$\frac{9}{16}$	1.62631	1789.0256	1.62716	1796.0821	1.62802	1803.1524
$\frac{19}{32}$	1.62634	1789.2459	1.62719	1796.3028	1.62804	1803.3735
$\frac{5}{8}$	1.62636	1789.4663	1.62722	1796.5235	1.62807	1803.5947
$\frac{21}{32}$	1.62639	1789.6866	1.62724	1796.7443	1.62810	1803.8158
$\frac{11}{16}$	1.62642	1789.9069	1.62727	1796.9651	1.62812	1804.0371
$\frac{23}{32}$	1.62644	1790.1273	1.62730	1797.1859	1.62815	1804.2584
$\frac{3}{4}$	1.62647	1790.3477	1.62732	1797.4067	1.62818	1804.4796
$\frac{25}{32}$	1.62650	1790.5680	1.62735	1797.6275	1.62820	1804.7006
$\frac{13}{16}$	1.62652	1790.7884	1.62738	1797.8483	1.62823	1804.9221
$\frac{27}{32}$	1.62655	1791.0089	1.62740	1798.0692	1.62826	1805.1434
$\frac{7}{8}$	1.62658	1791.2293	1.62743	1798.2900	1.62828	1805.3647
$\frac{29}{32}$	1.62660	1791.4497	1.62746	1798.5109	1.62831	1805.5860
$\frac{15}{16}$	1.62663	1791.6702	1.62748	1798.7318	1.62834	1805.8075
$\frac{31}{32}$	1.62666	1791.8906	1.62751	1798.9527	1.62836	1806.0287
1	1.62668	1792.1111	1.62754	1799.1736	1.62839	1806.2500

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.62839	1806.2500	1.62924	1813.3403	1.63009	1820.4444
$\frac{1}{32}$	1.62842	1806.4714	1.62927	1813.5621	1.63012	1820.6667
$\frac{1}{16}$	1.62844	1806.6927	1.62929	1813.7839	1.63014	1820.8889
$\frac{3}{32}$	1.62847	1806.9141	1.62932	1814.0057	1.63017	1821.1112
$\frac{1}{8}$	1.62850	1807.1355	1.62935	1814.2275	1.63019	1821.3334
$\frac{5}{32}$	1.62852	1807.3569	1.62937	1814.4494	1.63022	1821.5557
$\frac{3}{16}$	1.62855	1807.5784	1.62940	1814.6713	1.63025	1821.7780
$\frac{7}{32}$	1.62858	1807.7998	1.62943	1814.8931	1.63027	1822.0003
$\frac{1}{4}$	1.62860	1808.0213	1.62945	1815.1150	1.63030	1822.2227
$\frac{9}{32}$	1.62863	1808.2427	1.62948	1815.3369	1.63033	1822.4450
$\frac{5}{16}$	1.62865	1808.4642	1.62951	1815.5588	1.63035	1822.6673
$\frac{11}{32}$	1.62868	1808.6857	1.62953	1815.7808	1.63038	1822.8897
$\frac{3}{8}$	1.62871	1808.9072	1.62956	1816.0027	1.63041	1823.1121
$\frac{13}{32}$	1.62873	1809.1288	1.62958	1816.2247	1.63043	1823.3345
$\frac{7}{16}$	1.62876	1809.3503	1.62961	1816.4466	1.63046	1823.5569
$\frac{15}{32}$	1.62879	1809.5718	1.62964	1816.6686	1.63049	1823.7793
$\frac{1}{2}$	1.62881	1809.7934	1.62966	1816.8906	1.63051	1824.0017
$\frac{17}{32}$	1.62884	1810.0150	1.62969	1817.1126	1.63054	1824.2242
$\frac{9}{16}$	1.62887	1810.2366	1.62972	1817.3347	1.63057	1824.4466
$\frac{19}{32}$	1.62889	1810.4582	1.62974	1817.5567	1.63059	1824.6691
$\frac{5}{8}$	1.62892	1810.6798	1.62977	1817.7788	1.63062	1824.8916
$\frac{21}{32}$	1.62895	1810.9014	1.62980	1818.0008	1.63065	1825.1141
$\frac{11}{16}$	1.62897	1811.1231	1.62982	1818.2229	1.63067	1825.3366
$\frac{23}{32}$	1.62900	1811.3447	1.62985	1818.4450	1.63070	1825.5591
$\frac{3}{4}$	1.62903	1811.5664	1.62988	1818.6671	1.63072	1825.7817
$\frac{25}{32}$	1.62905	1811.7881	1.62990	1818.8892	1.63075	1826.0042
$\frac{13}{16}$	1.62908	1812.0098	1.62993	1819.1114	1.63078	1826.2268
$\frac{27}{32}$	1.62911	1812.2315	1.62996	1819.3335	1.63080	1826.4494
$\frac{7}{8}$	1.62913	1812.4532	1.62998	1819.5557	1.63083	1826.6720
$\frac{29}{32}$	1.62916	1812.6750	1.63001	1819.7778	1.63086	1826.8946
$\frac{15}{16}$	1.62919	1812.8967	1.63004	1820.0000	1.63088	1827.1172
$\frac{31}{32}$	1.62921	1813.1185	1.63006	1820.2222	1.63091	1827.3399
1	1.62924	1813.3403	1.63009	1820.4444	1.63094	1827.5625

Fractions of an inch	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63094	1827.5625	1.63178	1834.6944	1.63263	1841.8403
$\frac{1}{32}$	1.63096	1827.7852	1.63181	1834.9175	1.63265	1842.0638
$\frac{1}{16}$	1.63099	1828.0078	1.63183	1835.1407	1.63268	1842.2874
$\frac{3}{32}$	1.63102	1828.2305	1.63186	1835.3638	1.63271	1842.5109
$\frac{1}{8}$	1.63104	1828.4532	1.63189	1835.5869	1.63273	1842.7345
$\frac{5}{32}$	1.63107	1828.6760	1.63191	1835.8101	1.63276	1842.9581
$\frac{3}{16}$	1.63109	1828.8987	1.63194	1836.0332	1.63278	1843.1817
$\frac{7}{32}$	1.63112	1829.1214	1.63197	1836.2564	1.63281	1843.4053
$\frac{1}{4}$	1.63115	1829.3442	1.63199	1836.4796	1.63284	1843.6289
$\frac{9}{32}$	1.63117	1829.5670	1.63202	1836.7028	1.63286	1843.8525
$\frac{5}{16}$	1.63120	1829.7897	1.63205	1836.9260	1.63289	1844.0762
$\frac{11}{32}$	1.63123	1830.0125	1.63207	1837.1493	1.63292	1844.2999
$\frac{3}{8}$	1.63125	1830.2354	1.63210	1837.3725	1.63294	1844.5235
$\frac{13}{32}$	1.63128	1830.4582	1.63212	1837.5958	1.63297	1844.7472
$\frac{7}{16}$	1.63131	1830.6810	1.63215	1837.8190	1.63299	1844.9709
$\frac{15}{32}$	1.63133	1830.9039	1.63218	1838.0423	1.63302	1845.1947
$\frac{1}{2}$	1.63136	1831.1267	1.63220	1838.2656	1.63305	1845.4184
$\frac{17}{32}$	1.63139	1831.3496	1.63223	1838.4889	1.63307	1845.6422
$\frac{9}{16}$	1.63141	1831.5725	1.63226	1838.7123	1.63310	1845.8659
$\frac{19}{32}$	1.63144	1831.7954	1.63228	1838.9356	1.63313	1846.0897
$\frac{5}{8}$	1.63146	1832.0183	1.63231	1839.1590	1.63315	1846.3135
$\frac{21}{32}$	1.63149	1832.2413	1.63234	1839.3823	1.63318	1846.5373
$\frac{11}{16}$	1.63152	1832.4642	1.63236	1839.6057	1.63321	1846.7611
$\frac{23}{32}$	1.63154	1832.6872	1.63239	1839.8291	1.63323	1846.9849
$\frac{3}{4}$	1.63157	1832.9102	1.63242	1840.0525	1.63326	1847.2088
$\frac{25}{32}$	1.63160	1833.1331	1.63244	1840.2759	1.63328	1847.4326
$\frac{13}{16}$	1.63162	1833.3561	1.63247	1840.4994	1.63331	1847.6565
$\frac{27}{32}$	1.63165	1833.5792	1.63249	1840.7228	1.63334	1847.8804
$\frac{7}{8}$	1.63168	1833.8022	1.63252	1840.9463	1.63336	1848.1043
$\frac{29}{32}$	1.63170	1834.0252	1.63255	1841.1698	1.63339	1848.3282
$\frac{15}{16}$	1.63173	1834.2483	1.63257	1841.3933	1.63342	1848.5521
$\frac{31}{32}$	1.63176	1834.4714	1.63260	1841.6168	1.63344	1848.7760
1	1.63178	1834.6944	1.63263	1841.8403	1.63347	1849.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63347	1849.0000	1.63431	1856.1736	1.63515	1863.3611
$\frac{1}{32}$	1.63349	1849.2240	1.63434	1856.3980	1.63517	1863.5859
$\frac{1}{16}$	1.63352	1849.4479	1.63436	1856.6224	1.63520	1863.8108
$\frac{3}{32}$	1.63355	1849.6719	1.63439	1856.8468	1.63523	1864.0357
$\frac{1}{8}$	1.63357	1849.8959	1.63441	1857.0713	1.63525	1864.2605
$\frac{5}{32}$	1.63360	1850.1200	1.63444	1857.2957	1.63528	1864.4854
$\frac{3}{16}$	1.63363	1850.3440	1.63447	1857.5202	1.63531	1864.7103
$\frac{7}{32}$	1.63365	1850.5680	1.63449	1857.7447	1.63533	1864.9352
$\frac{1}{4}$	1.63368	1850.7921	1.63452	1857.9692	1.63536	1865.1602
$\frac{9}{32}$	1.63371	1851.0162	1.63455	1858.1937	1.63538	1865.3851
$\frac{5}{16}$	1.63373	1851.2403	1.63457	1858.4182	1.63541	1865.6101
$\frac{11}{32}$	1.63376	1851.4644	1.63460	1858.6427	1.63544	1865.8350
$\frac{3}{8}$	1.63378	1851.6885	1.63462	1858.8673	1.63546	1866.0600
$\frac{13}{32}$	1.63381	1851.9126	1.63465	1859.0919	1.63549	1866.2850
$\frac{7}{16}$	1.63384	1852.1367	1.63468	1859.3164	1.63552	1866.5100
$\frac{15}{32}$	1.63386	1852.3609	1.63470	1859.5410	1.63554	1866.7350
$\frac{1}{2}$	1.63389	1852.5851	1.63473	1859.7656	1.63557	1866.9601
$\frac{17}{32}$	1.63392	1852.8093	1.63476	1859.9902	1.63559	1867.1851
$\frac{9}{16}$	1.63394	1853.0334	1.63478	1860.2149	1.63562	1867.4102
$\frac{19}{32}$	1.63397	1853.2577	1.63481	1860.4395	1.63565	1867.6353
$\frac{5}{8}$	1.63399	1853.4819	1.63483	1860.6642	1.63567	1867.8604
$\frac{21}{32}$	1.63402	1853.7061	1.63486	1860.8888	1.63570	1868.0855
$\frac{11}{16}$	1.63405	1853.9304	1.63489	1861.1135	1.63572	1868.3106
$\frac{23}{32}$	1.63407	1854.1546	1.63491	1861.3382	1.63575	1868.5357
$\frac{3}{4}$	1.63410	1854.3789	1.63494	1861.5629	1.63578	1868.7609
$\frac{25}{32}$	1.63413	1854.6032	1.63497	1861.7877	1.63580	1868.9860
$\frac{13}{16}$	1.63415	1854.8275	1.63499	1862.0124	1.63583	1869.2112
$\frac{27}{32}$	1.63418	1855.0518	1.63502	1862.2371	1.63586	1869.4364
$\frac{7}{8}$	1.63420	1855.2761	1.63504	1862.4619	1.63588	1869.6616
$\frac{29}{32}$	1.63423	1855.5005	1.63507	1862.6867	1.63591	1869.8868
$\frac{15}{16}$	1.63426	1855.7249	1.63510	1862.9115	1.63593	1870.1120
$\frac{31}{32}$	1.63428	1855.9492	1.63512	1863.1363	1.63596	1870.3372
1	1.63431	1856.1736	1.63515	1863.3611	1.63599	1870.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63599	1870.5625	1.63682	1877.7778	1.63766	1885.0069
$\frac{1}{32}$	1.63601	1870.7878	1.63685	1878.0035	1.63768	1885.2331
$\frac{1}{16}$	1.63604	1871.0130	1.63687	1878.2292	1.63771	1885.4592
$\frac{3}{32}$	1.63606	1871.2383	1.63690	1878.4549	1.63773	1885.6854
$\frac{1}{8}$	1.63609	1871.4637	1.63693	1878.6807	1.63776	1885.9116
$\frac{5}{32}$	1.63612	1871.6890	1.63695	1878.9064	1.63779	1886.1378
$\frac{3}{16}$	1.63614	1871.9143	1.63698	1879.1322	1.63781	1886.3640
$\frac{7}{32}$	1.63617	1872.1397	1.63700	1879.3580	1.63784	1886.5902
$\frac{1}{4}$	1.63620	1872.3650	1.63703	1879.5838	1.63786	1886.8164
$\frac{9}{32}$	1.63622	1872.5904	1.63706	1879.8096	1.63789	1887.0426
$\frac{5}{16}$	1.63625	1872.8158	1.63708	1880.0354	1.63792	1887.2689
$\frac{11}{32}$	1.63627	1873.0412	1.63711	1880.2612	1.63794	1887.4952
$\frac{3}{8}$	1.63630	1873.2666	1.63714	1880.4871	1.63797	1887.7215
$\frac{13}{32}$	1.63633	1873.4920	1.63716	1880.7130	1.63799	1887.9478
$\frac{7}{16}$	1.63635	1873.7175	1.63719	1880.9388	1.63802	1888.1741
$\frac{15}{32}$	1.63638	1873.9429	1.63721	1881.1647	1.63805	1888.4004
$\frac{1}{2}$	1.63640	1874.1684	1.63724	1881.3906	1.63807	1888.6267
$\frac{17}{32}$	1.63643	1874.3939	1.63727	1881.6165	1.63810	1888.8531
$\frac{9}{16}$	1.63646	1874.6194	1.63729	1881.8425	1.63813	1889.0795
$\frac{19}{32}$	1.63648	1874.8449	1.63732	1882.0684	1.63815	1889.3058
$\frac{5}{8}$	1.63651	1875.0704	1.63734	1882.2944	1.63818	1889.5322
$\frac{21}{32}$	1.63653	1875.2960	1.63737	1882.5204	1.63820	1889.7586
$\frac{11}{16}$	1.63656	1875.5215	1.63740	1882.7463	1.63823	1889.9851
$\frac{23}{32}$	1.63659	1875.7471	1.63742	1882.9723	1.63826	1890.2115
$\frac{3}{4}$	1.63661	1875.9727	1.63745	1883.1984	1.63828	1890.4379
$\frac{25}{32}$	1.63664	1876.1982	1.63747	1883.4244	1.63831	1890.6644
$\frac{13}{16}$	1.63667	1876.4239	1.63750	1883.6504	1.63833	1890.8909
$\frac{27}{32}$	1.63669	1876.6495	1.63753	1883.8765	1.63836	1891.1174
$\frac{7}{8}$	1.63672	1876.8751	1.63755	1884.1025	1.63839	1891.3439
$\frac{29}{32}$	1.63674	1877.1008	1.63758	1884.3286	1.63841	1891.5704
$\frac{15}{16}$	1.63677	1877.3264	1.63760	1884.5547	1.63844	1891.7969
$\frac{31}{32}$	1.63680	1877.5521	1.63763	1884.7808	1.63846	1892.0234
1	1.63682	1877.7778	1.63766	1885.0069	1.63849	1892.2500



Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.63849	1892.2500	1.63982	1899.5069	1.64015	1906.7778
$\frac{1}{32}$	1.63852	1892.4766	1.63935	1899.7339	1.64018	1907.0052
$\frac{1}{16}$	1.63854	1892.7032	1.63937	1899.9610	1.64020	1907.2327
$\frac{3}{32}$	1.63857	1892.9297	1.63940	1900.1880	1.64023	1907.4601
$\frac{1}{8}$	1.63859	1893.1564	1.63942	1900.4150	1.64025	1907.6876
$\frac{5}{32}$	1.63862	1893.3830	1.63945	1900.6421	1.64028	1907.9151
$\frac{3}{16}$	1.63865	1893.6096	1.63948	1900.8692	1.64031	1908.1426
$\frac{7}{32}$	1.63867	1893.8363	1.63950	1901.0963	1.64033	1908.3701
$\frac{1}{4}$	1.63870	1894.0629	1.63953	1901.3234	1.64036	1908.5977
$\frac{9}{32}$	1.63872	1894.2896	1.63955	1901.5505	1.64038	1908.8252
$\frac{5}{16}$	1.63875	1894.5163	1.63958	1901.7776	1.64041	1909.0528
$\frac{11}{32}$	1.63878	1894.7430	1.63961	1902.0047	1.64043	1909.2803
$\frac{3}{8}$	1.63880	1894.9697	1.63963	1902.2319	1.64046	1909.5079
$\frac{13}{32}$	1.63883	1895.1965	1.63966	1902.4590	1.64049	1909.7355
$\frac{7}{16}$	1.63885	1895.4232	1.63968	1902.6862	1.64051	1909.9631
$\frac{15}{32}$	1.63888	1895.6500	1.63971	1902.9134	1.64054	1910.1908
$\frac{1}{2}$	1.63891	1895.8767	1.63974	1903.1406	1.64056	1910.4184
$\frac{17}{32}$	1.63893	1896.1035	1.63976	1903.3678	1.64059	1910.6461
$\frac{9}{16}$	1.63896	1896.3303	1.63979	1903.5951	1.64062	1910.8737
$\frac{19}{32}$	1.63898	1896.5571	1.63981	1903.8223	1.64064	1911.1014
$\frac{5}{8}$	1.63901	1896.7840	1.63984	1904.0496	1.64067	1911.3291
$\frac{21}{32}$	1.63903	1897.0108	1.63987	1904.2769	1.64069	1911.5568
$\frac{11}{16}$	1.63906	1897.2377	1.63989	1904.5042	1.64072	1911.7845
$\frac{23}{32}$	1.63909	1897.4645	1.63992	1904.7315	1.64075	1912.0123
$\frac{3}{4}$	1.63911	1897.6914	1.63994	1904.9588	1.64077	1912.2400
$\frac{25}{32}$	1.63914	1897.9183	1.63997	1905.1861	1.64080	1912.4678
$\frac{13}{16}$	1.63916	1898.1452	1.63999	1905.4134	1.64082	1912.6956
$\frac{27}{32}$	1.63919	1898.3721	1.64002	1905.6408	1.64085	1912.9233
$\frac{7}{8}$	1.63922	1898.5991	1.64005	1905.8682	1.64087	1913.1512
$\frac{29}{32}$	1.63924	1898.8260	1.64007	1906.0955	1.64090	1913.3790
$\frac{15}{16}$	1.63927	1899.0530	1.64010	1906.3229	1.64093	1913.6068
$\frac{31}{32}$	1.63929	1899.2800	1.64012	1906.5504	1.64095	1913.8346
1	1.63932	1899.5069	1.64015	1906.7778	1.64098	1914.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.64098	1914.0625	1.64180	1921.3611	1.64263	1928.6736
$\frac{1}{32}$	1.64100	1914.2904	1.64183	1921.5894	1.64266	1928.9024
$\frac{1}{16}$	1.64103	1914.5183	1.64186	1921.8177	1.64268	1929.1311
$\frac{3}{32}$	1.64106	1914.7462	1.64188	1922.0461	1.64271	1929.3599
$\frac{1}{8}$	1.64108	1914.9741	1.64191	1922.2744	1.64273	1929.5887
$\frac{5}{32}$	1.64111	1915.2020	1.64193	1922.5028	1.64276	1929.8174
$\frac{3}{16}$	1.64113	1915.4299	1.64196	1922.7311	1.64278	1930.0463
$\frac{7}{32}$	1.64116	1915.6579	1.64199	1922.9595	1.64281	1930.2751
$\frac{1}{4}$	1.64118	1915.8859	1.64201	1923.1879	1.64284	1930.5039
$\frac{9}{32}$	1.64121	1916.1138	1.64204	1923.4163	1.64286	1930.7328
$\frac{5}{16}$	1.64124	1916.3418	1.64206	1923.6448	1.64289	1930.9616
$\frac{11}{32}$	1.64126	1916.5698	1.64209	1923.8732	1.64291	1931.1905
$\frac{3}{8}$	1.64129	1916.7979	1.64211	1924.1017	1.64294	1931.4194
$\frac{13}{32}$	1.64131	1917.0259	1.64214	1924.3301	1.64296	1931.6483
$\frac{7}{16}$	1.64134	1917.2539	1.64217	1924.5586	1.64299	1931.8772
$\frac{15}{32}$	1.64137	1917.4820	1.64219	1924.7871	1.64302	1932.1061
$\frac{1}{2}$	1.64139	1917.7101	1.64222	1925.0156	1.64304	1932.3351
$\frac{17}{32}$	1.64142	1917.9382	1.64224	1925.2441	1.64307	1932.5640
$\frac{9}{16}$	1.64144	1918.1663	1.64227	1925.4727	1.64309	1932.7930
$\frac{19}{32}$	1.64147	1918.3944	1.64229	1925.7012	1.64312	1933.0220
$\frac{5}{8}$	1.64149	1918.6225	1.64232	1925.9298	1.64314	1933.2510
$\frac{21}{32}$	1.64152	1918.8506	1.64235	1926.1584	1.64317	1933.4800
$\frac{11}{16}$	1.64155	1919.0788	1.64237	1926.3870	1.64320	1933.7090
$\frac{23}{32}$	1.64157	1919.3070	1.64240	1926.6156	1.64322	1933.9380
$\frac{3}{4}$	1.64160	1919.5352	1.64242	1926.8442	1.64325	1934.1671
$\frac{25}{32}$	1.64162	1919.7634	1.64245	1927.0728	1.64327	1934.3962
$\frac{13}{16}$	1.64165	1919.9916	1.64247	1927.3015	1.64330	1934.6252
$\frac{27}{32}$	1.64168	1920.2198	1.64250	1927.5301	1.64332	1934.8543
$\frac{7}{8}$	1.64170	1920.4480	1.64253	1927.7588	1.64335	1935.0834
$\frac{29}{32}$	1.64173	1920.6763	1.64255	1927.9875	1.64338	1935.3126
$\frac{15}{16}$	1.64175	1920.9045	1.64258	1928.2162	1.64340	1935.5417
$\frac{31}{32}$	1.64178	1921.1328	1.64260	1928.4449	1.64343	1935.7708
1	1.64180	1921.3611	1.64263	1928.6736	1.64345	1936.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.64345	1936.0000	1.64427	1943.3403	1.64509	1950.6944
$\frac{1}{32}$	1.64348	1936.2292	1.64430	1943.5699	1.64512	1950.9245
$\frac{1}{16}$	1.64350	1936.4584	1.64433	1943.7995	1.64515	1951.1545
$\frac{3}{32}$	1.64353	1936.6876	1.64435	1944.0291	1.64517	1951.3846
$\frac{1}{8}$	1.64356	1936.9168	1.64438	1944.2588	1.64520	1951.6147
$\frac{5}{32}$	1.64358	1937.1460	1.64440	1944.4885	1.64522	1951.8448
$\frac{3}{16}$	1.64361	1937.3752	1.64443	1944.7181	1.64525	1952.0749
$\frac{7}{32}$	1.64363	1937.6045	1.64445	1944.9478	1.64527	1952.3050
$\frac{1}{4}$	1.64366	1937.8338	1.64448	1945.1775	1.64530	1952.5352
$\frac{9}{32}$	1.64368	1938.0630	1.64451	1945.4072	1.64533	1952.7653
$\frac{5}{16}$	1.64371	1938.2923	1.64453	1945.6370	1.64535	1952.9955
$\frac{11}{32}$	1.64374	1938.5217	1.64456	1945.8667	1.64538	1953.2256
$\frac{3}{8}$	1.64376	1938.7510	1.64458	1946.0965	1.64540	1953.4558
$\frac{13}{32}$	1.64379	1938.9808	1.64461	1946.3262	1.64543	1953.6860
$\frac{7}{16}$	1.64381	1939.2097	1.64463	1946.5560	1.64545	1953.9163
$\frac{15}{32}$	1.64384	1939.4390	1.64466	1946.7858	1.64548	1954.1465
$\frac{1}{2}$	1.64386	1939.6684	1.64468	1947.0156	1.64550	1954.3767
$\frac{17}{32}$	1.64389	1939.8978	1.64471	1947.2454	1.64553	1954.6070
$\frac{9}{16}$	1.64392	1940.1272	1.64474	1947.4753	1.64556	1954.8373
$\frac{19}{32}$	1.64394	1940.3566	1.64476	1947.7051	1.64558	1955.0676
$\frac{5}{8}$	1.64397	1940.5860	1.64479	1947.9350	1.64561	1955.2979
$\frac{21}{32}$	1.64399	1940.8155	1.64481	1948.1649	1.64563	1955.5282
$\frac{11}{16}$	1.64402	1941.0449	1.64484	1948.3948	1.64566	1955.7585
$\frac{23}{32}$	1.64404	1941.2744	1.64486	1948.6247	1.64568	1955.9888
$\frac{3}{4}$	1.64407	1941.5039	1.64489	1948.8546	1.64571	1956.2192
$\frac{25}{32}$	1.64409	1941.7334	1.64492	1949.0845	1.64573	1956.4496
$\frac{13}{16}$	1.64412	1941.9629	1.64494	1949.3145	1.64576	1956.6799
$\frac{27}{32}$	1.64415	1942.1924	1.64497	1949.5444	1.64579	1956.9103
$\frac{7}{8}$	1.64417	1942.4220	1.64499	1949.7744	1.64581	1957.1407
$\frac{29}{32}$	1.64420	1942.6515	1.64502	1950.0044	1.64584	1957.3712
$\frac{15}{16}$	1.64422	1942.8811	1.64504	1950.2344	1.64586	1957.6016
$\frac{31}{32}$	1.64425	1943.1107	1.64507	1950.4644	1.64589	1957.8320
1	1.64427	1943.3403	1.64509	1950.6944	1.64591	1958.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.64591	1958.0625	1.64673	1965.4444	1.64755	1972.8403
$\frac{1}{32}$	1.64594	1958.2080	1.64676	1965.6754	1.64757	1973.0716
$\frac{1}{16}$	1.64596	1958.5235	1.64678	1965.9063	1.64760	1973.3030
$\frac{3}{32}$	1.64599	1958.7540	1.64681	1966.1372	1.64762	1973.5343
$\frac{1}{8}$	1.64602	1958.9845	1.64683	1966.3682	1.64765	1973.7657
$\frac{5}{32}$	1.64604	1959.2150	1.64686	1966.5991	1.64767	1973.9971
$\frac{3}{16}$	1.64607	1959.4456	1.64688	1966.8301	1.64770	1974.2285
$\frac{7}{32}$	1.64609	1959.6761	1.64691	1967.0611	1.64772	1974.4600
$\frac{1}{4}$	1.64612	1959.9067	1.64693	1967.2921	1.64775	1974.6914
$\frac{9}{32}$	1.64614	1960.1373	1.64696	1967.5231	1.64778	1974.9229
$\frac{5}{16}$	1.64617	1960.3679	1.64699	1967.7542	1.64780	1975.1543
$\frac{11}{32}$	1.64619	1960.5985	1.64701	1967.9852	1.64783	1975.3858
$\frac{3}{8}$	1.64622	1960.8291	1.64704	1968.2163	1.64785	1975.6173
$\frac{13}{32}$	1.64625	1961.0597	1.64706	1968.4473	1.64788	1975.8488
$\frac{7}{16}$	1.64627	1961.2904	1.64709	1968.6784	1.64790	1976.0803
$\frac{15}{32}$	1.64630	1961.5211	1.64711	1968.9095	1.64793	1976.3119
$\frac{1}{2}$	1.64633	1961.7517	1.64714	1969.1406	1.64795	1976.5434
$\frac{17}{32}$	1.64635	1961.9824	1.64716	1969.3718	1.64798	1976.7750
$\frac{9}{16}$	1.64637	1962.2131	1.64719	1969.6029	1.64800	1977.0065
$\frac{19}{32}$	1.64640	1962.4439	1.64721	1969.8340	1.64803	1977.2381
$\frac{5}{8}$	1.64642	1962.6746	1.64724	1970.0652	1.64805	1977.4697
$\frac{21}{32}$	1.64645	1962.9053	1.64727	1970.2964	1.64808	1977.7013
$\frac{11}{16}$	1.64648	1963.1361	1.64729	1970.5276	1.64811	1977.9330
$\frac{23}{32}$	1.64650	1963.3669	1.64732	1970.7588	1.64813	1978.1646
$\frac{3}{4}$	1.64653	1963.5977	1.64734	1970.9900	1.64816	1978.3963
$\frac{25}{32}$	1.64655	1963.8285	1.64737	1971.2213	1.64818	1978.6279
$\frac{13}{16}$	1.64658	1964.0593	1.64739	1971.4525	1.64821	1978.8596
$\frac{27}{32}$	1.64660	1964.2901	1.64742	1971.6838	1.64823	1979.0913
$\frac{7}{8}$	1.64663	1964.5209	1.64744	1971.9150	1.64826	1979.3230
$\frac{29}{32}$	1.64665	1964.7518	1.64747	1972.1463	1.64828	1979.5547
$\frac{15}{16}$	1.64668	1964.9827	1.64750	1972.3776	1.64831	1979.7865
$\frac{31}{32}$	1.64670	1965.2135	1.64752	1972.6089	1.64833	1980.0182
1	1.64673	1965.4444	1.64755	1972.8403	1.64836	1980.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.64836	1980.2500	1.64917	1987.6736	1.64998	1996.1111
$\frac{1}{32}$	1.64839	1980.4818	1.64920	1987.9058	1.65001	1996.3438
$\frac{1}{16}$	1.64841	1980.7136	1.64922	1988.1380	1.65003	1996.5764
$\frac{3}{32}$	1.64844	1980.9454	1.64925	1988.3703	1.65006	1996.8091
$\frac{1}{8}$	1.64846	1981.1772	1.64927	1988.6025	1.65008	1996.0418
$\frac{5}{32}$	1.64849	1981.4090	1.64930	1988.8348	1.65011	1996.2745
$\frac{3}{16}$	1.64851	1981.6409	1.64932	1989.0671	1.65014	1996.5072
$\frac{7}{32}$	1.64854	1981.8727	1.64935	1989.2994	1.65016	1996.7399
$\frac{1}{4}$	1.64856	1982.1046	1.64938	1989.5317	1.65019	1996.9727
$\frac{9}{32}$	1.64859	1982.3365	1.64940	1989.7640	1.65021	1997.2054
$\frac{5}{16}$	1.64861	1982.5684	1.64943	1989.9963	1.65024	1997.4382
$\frac{11}{32}$	1.64864	1982.8003	1.64945	1990.2287	1.65026	1997.6710
$\frac{3}{8}$	1.64866	1983.0322	1.64948	1990.4610	1.65029	1997.9038
$\frac{13}{32}$	1.64869	1983.2642	1.64950	1990.6934	1.65031	1998.1366
$\frac{7}{16}$	1.64872	1983.4961	1.64953	1990.9258	1.65034	1998.3694
$\frac{15}{32}$	1.64874	1983.7281	1.64955	1991.1582	1.65036	1998.6022
$\frac{1}{2}$	1.64877	1983.9601	1.64958	1991.3906	1.65039	1998.8351
$\frac{17}{32}$	1.64879	1984.1921	1.64960	1991.6231	1.65041	1999.0679
$\frac{9}{16}$	1.64882	1984.4241	1.64963	1991.8555	1.65044	1999.3008
$\frac{19}{32}$	1.64884	1984.6561	1.64965	1992.0880	1.65046	1999.5337
$\frac{5}{8}$	1.64887	1984.8881	1.64968	1992.3204	1.65049	1999.7666
$\frac{21}{32}$	1.64889	1985.1202	1.64970	1992.5529	1.65051	1999.9995
$\frac{11}{16}$	1.64892	1985.3522	1.64973	1992.7854	1.65054	2000.2324
$\frac{23}{32}$	1.64894	1985.5843	1.64976	1993.0179	1.65057	2000.4654
$\frac{3}{4}$	1.64897	1985.8164	1.64978	1993.2504	1.65059	2000.6984
$\frac{25}{32}$	1.64899	1986.0485	1.64981	1993.4830	1.65062	2000.9313
$\frac{13}{16}$	1.64902	1986.2806	1.64983	1993.7155	1.65064	2001.1643
$\frac{27}{32}$	1.64905	1986.5128	1.64986	1993.9481	1.65067	2001.3973
$\frac{7}{8}$	1.64907	1986.7449	1.64988	1994.1807	1.65069	2001.6303
$\frac{29}{32}$	1.64910	1986.9771	1.64991	1994.4133	1.65072	2001.8633
$\frac{15}{16}$	1.64912	1987.2092	1.64993	1994.6459	1.65074	2002.0964
$\frac{31}{32}$	1.64915	1987.4414	1.64996	1994.8785	1.65077	2002.3294
1	1.64917	1987.6736	1.64998	1995.1111	1.65079	2002.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.65079	2002.5625	1.65160	2010.0278	1.65241	2017.5069
$\frac{1}{32}$	1.65082	2002.7956	1.65163	2010.2613	1.65243	2017.7409
$\frac{1}{16}$	1.65084	2003.0287	1.65165	2010.4948	1.65246	2017.9749
$\frac{3}{32}$	1.65087	2003.2618	1.65168	2010.7284	1.65248	2018.2088
$\frac{1}{8}$	1.65089	2003.4949	1.65170	2010.9619	1.65251	2018.4428
$\frac{5}{32}$	1.65092	2003.7280	1.65173	2011.1955	1.65253	2018.6768
$\frac{3}{16}$	1.65094	2003.9612	1.65175	2011.4291	1.65256	2018.9108
$\frac{7}{32}$	1.65097	2004.1943	1.65178	2011.6627	1.65258	2019.1449
$\frac{1}{4}$	1.65100	2004.4275	1.65180	2011.8963	1.65261	2019.3789
$\frac{9}{32}$	1.65102	2004.6607	1.65183	2012.1299	1.65263	2019.6130
$\frac{5}{16}$	1.65105	2004.8939	1.65185	2012.3635	1.65266	2019.8470
$\frac{11}{32}$	1.65107	2005.1271	1.65188	2012.5972	1.65268	2020.0811
$\frac{3}{8}$	1.65110	2005.3604	1.65190	2012.8308	1.65271	2020.3152
$\frac{13}{32}$	1.65112	2005.5936	1.65193	2013.0645	1.65273	2020.5493
$\frac{7}{16}$	1.65115	2005.8268	1.65195	2013.2982	1.65276	2020.7834
$\frac{15}{32}$	1.65117	2006.0601	1.65198	2013.5319	1.65279	2021.0176
$\frac{1}{2}$	1.65120	2006.2934	1.65200	2013.7656	1.65281	2021.2517
$\frac{17}{32}$	1.65122	2006.5267	1.65203	2013.9994	1.65284	2021.4859
$\frac{9}{16}$	1.65125	2006.7600	1.65205	2014.2331	1.65286	2021.7201
$\frac{19}{32}$	1.65127	2006.9933	1.65208	2014.4669	1.65289	2021.9543
$\frac{5}{8}$	1.65130	2007.2267	1.65211	2014.7006	1.65291	2022.1885
$\frac{21}{32}$	1.65132	2007.4600	1.65213	2014.9344	1.65294	2022.4227
$\frac{11}{16}$	1.65135	2007.6934	1.65216	2015.1682	1.65296	2022.6569
$\frac{23}{32}$	1.65137	2007.9268	1.65218	2015.4020	1.65299	2022.8912
$\frac{3}{4}$	1.65140	2008.1602	1.65221	2015.6359	1.65301	2023.1254
$\frac{25}{32}$	1.65142	2008.3936	1.65223	2015.8697	1.65304	2023.3597
$\frac{13}{16}$	1.65145	2008.6270	1.65226	2016.1035	1.65306	2023.5940
$\frac{27}{32}$	1.65147	2008.8604	1.65228	2016.3374	1.65309	2023.8283
$\frac{7}{8}$	1.65150	2009.0939	1.65231	2016.5713	1.65311	2024.0626
$\frac{29}{32}$	1.65153	2009.3273	1.65233	2016.8052	1.65314	2024.2969
$\frac{15}{16}$	1.65155	2009.5608	1.65236	2017.0391	1.65316	2024.5313
$\frac{31}{32}$	1.65158	2009.7943	1.65238	2017.2730	1.65319	2024.7656
1	1.65160	2010.0278	1.65241	2017.5069	1.65321	2025.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.65321	2025.0000	1.65402	2032.5069	1.65482	2040.0278
$\frac{1}{64}$	1.65324	2025.2344	1.65404	2032.7418	1.65484	2040.2630
$\frac{1}{32}$	1.65326	2025.4688	1.65407	2032.9766	1.65487	2040.4983
$\frac{3}{64}$	1.65329	2025.7032	1.65409	2033.2114	1.65489	2040.7336
$\frac{1}{8}$	1.65331	2025.9376	1.65412	2033.4463	1.65492	2040.9689
$\frac{5}{64}$	1.65334	2026.1720	1.65414	2033.6812	1.65494	2041.2042
$\frac{3}{16}$	1.65336	2026.4065	1.65417	2033.9160	1.65497	2041.4395
$\frac{7}{64}$	1.65339	2026.6410	1.65419	2034.1509	1.65499	2041.6748
$\frac{1}{4}$	1.65341	2026.8754	1.65422	2034.3859	1.65502	2041.9102
$\frac{9}{64}$	1.65344	2027.1099	1.65424	2034.6208	1.65504	2042.1455
$\frac{5}{16}$	1.65346	2027.3444	1.65427	2034.8557	1.65507	2042.3809
$\frac{11}{64}$	1.65349	2027.5789	1.65429	2035.0907	1.65509	2042.6163
$\frac{3}{8}$	1.65351	2027.8135	1.65432	2035.3256	1.65512	2042.8517
$\frac{13}{64}$	1.65354	2028.0480	1.65434	2035.5606	1.65514	2043.0871
$\frac{7}{16}$	1.65356	2028.2826	1.65437	2035.7956	1.65517	2043.3225
$\frac{15}{64}$	1.65359	2028.5172	1.65439	2036.0306	1.65519	2043.5579
$\frac{1}{2}$	1.65361	2028.7517	1.65442	2036.2656	1.65522	2043.7934
$\frac{17}{64}$	1.65364	2028.9863	1.65444	2036.5007	1.65524	2044.0289
$\frac{9}{16}$	1.65366	2029.2209	1.65447	2036.7357	1.65527	2044.2644
$\frac{19}{64}$	1.65369	2029.4556	1.65449	2036.9708	1.65529	2044.4998
$\frac{5}{8}$	1.65371	2029.6902	1.65452	2037.2058	1.65532	2044.7354
$\frac{21}{64}$	1.65374	2029.9249	1.65454	2037.4409	1.65534	2044.9709
$\frac{11}{16}$	1.65377	2030.1595	1.65457	2037.6760	1.65537	2045.2064
$\frac{23}{64}$	1.65379	2030.3942	1.65459	2037.9111	1.65539	2045.4420
$\frac{3}{4}$	1.65382	2030.6289	1.65462	2038.1463	1.65542	2045.6775
$\frac{25}{64}$	1.65384	2030.8636	1.65464	2038.3814	1.65544	2045.9131
$\frac{13}{16}$	1.65387	2031.0983	1.65467	2038.6166	1.65547	2046.1487
$\frac{27}{64}$	1.65389	2031.3331	1.65469	2038.8517	1.65549	2046.3843
$\frac{7}{8}$	1.65392	2031.5678	1.65472	2039.0869	1.65552	2046.6199
$\frac{29}{64}$	1.65394	2031.8026	1.65474	2039.3221	1.65554	2046.8555
$\frac{15}{16}$	1.65397	2032.0374	1.65477	2039.5573	1.65557	2047.0912
$\frac{31}{64}$	1.65399	2032.2721	1.65479	2039.7925	1.65559	2047.3268
1	1.65402	2032.5069	1.65482	2040.0278	1.65562	2047.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.65562	2047.5625	1.65642	2055.1111	1.65722	2062.6736
$\frac{1}{32}$	1.65564	2047.7982	1.65644	2055.3472	1.65724	2062.9102
$\frac{1}{16}$	1.65567	2048.0339	1.65647	2055.5834	1.65727	2063.1467
$\frac{3}{32}$	1.65569	2048.2696	1.65649	2055.8195	1.65729	2063.3833
$\frac{1}{8}$	1.65572	2048.5053	1.65652	2056.0557	1.65731	2063.6199
$\frac{5}{32}$	1.65574	2048.7411	1.65654	2056.2918	1.65734	2063.8565
$\frac{3}{16}$	1.65577	2048.9768	1.65657	2056.5280	1.65736	2064.0931
$\frac{7}{32}$	1.65579	2049.2126	1.65659	2056.7642	1.65739	2064.3298
$\frac{1}{4}$	1.65582	2049.4484	1.65662	2057.0004	1.65741	2064.5664
$\frac{9}{32}$	1.65584	2049.6841	1.65664	2057.2367	1.65744	2064.8031
$\frac{5}{16}$	1.65587	2049.9199	1.65667	2057.4729	1.65746	2065.0397
$\frac{11}{32}$	1.65589	2050.1558	1.65669	2057.7092	1.65749	2065.2764
$\frac{3}{8}$	1.65592	2050.3916	1.65672	2057.9454	1.65751	2065.5131
$\frac{13}{32}$	1.65594	2050.6274	1.65674	2058.1817	1.65754	2065.7498
$\frac{7}{16}$	1.65597	2050.8633	1.65677	2058.4180	1.65756	2065.9866
$\frac{15}{32}$	1.65599	2051.0992	1.65679	2058.6543	1.65759	2066.2233
$\frac{1}{2}$	1.65602	2051.3351	1.65682	2058.8906	1.65761	2066.4601
$\frac{17}{32}$	1.65604	2051.5710	1.65684	2059.1270	1.65764	2066.6968
$\frac{9}{16}$	1.65607	2051.8069	1.65687	2059.3633	1.65766	2066.9336
$\frac{19}{32}$	1.65609	2052.0428	1.65689	2059.5997	1.65769	2067.1704
$\frac{5}{8}$	1.65612	2052.2788	1.65692	2059.8360	1.65771	2067.4072
$\frac{21}{32}$	1.65614	2052.5147	1.65694	2060.0724	1.65774	2067.6440
$\frac{11}{16}$	1.65617	2052.7507	1.65697	2060.3088	1.65776	2067.8809
$\frac{23}{32}$	1.65619	2052.9867	1.65699	2060.5453	1.65779	2068.1177
$\frac{3}{4}$	1.65622	2053.2227	1.65702	2060.7817	1.65781	2068.3546
$\frac{25}{32}$	1.65624	2053.4587	1.65704	2061.0181	1.65784	2068.5915
$\frac{13}{16}$	1.65627	2053.6947	1.65707	2061.2546	1.65786	2068.8284
$\frac{27}{32}$	1.65629	2053.9307	1.65709	2061.4911	1.65789	2069.0653
$\frac{7}{8}$	1.65632	2054.1668	1.65712	2061.7275	1.65791	2069.3022
$\frac{29}{32}$	1.65634	2054.4028	1.65714	2061.9640	1.65794	2069.5391
$\frac{15}{16}$	1.65637	2054.6389	1.65717	2062.2005	1.65796	2069.7761
$\frac{31}{32}$	1.65639	2054.8750	1.65719	2062.4371	1.65799	2070.0130
1	1.65642	2055.1111	1.65722	2062.6736	1.65801	2070.2500



Fractions of an inch	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.65801	2070.2500	1.65881	2077.8403	1.65960	2085.4444
$\frac{1}{32}$	1.65804	2070.4870	1.65883	2078.0777	1.65962	2085.6823
$\frac{1}{16}$	1.65806	2070.7240	1.65886	2078.3151	1.65965	2085.9202
$\frac{3}{32}$	1.65809	2070.9610	1.65888	2078.5526	1.65967	2086.1580
$\frac{1}{8}$	1.65811	2071.1980	1.65891	2078.7900	1.65970	2086.3959
$\frac{5}{32}$	1.65814	2071.4351	1.65893	2079.0275	1.65972	2086.6338
$\frac{3}{16}$	1.65816	2071.6721	1.65895	2079.2650	1.65975	2086.8718
$\frac{7}{32}$	1.65819	2071.9092	1.65898	2079.5025	1.65977	2087.1097
$\frac{1}{4}$	1.65821	2072.1463	1.65900	2079.7400	1.65980	2087.3477
$\frac{9}{32}$	1.65824	2072.3834	1.65903	2079.9775	1.65982	2087.5856
$\frac{5}{16}$	1.65826	2072.6205	1.65905	2080.2151	1.65985	2087.8236
$\frac{11}{32}$	1.65828	2072.8576	1.65908	2080.4526	1.65987	2088.0616
$\frac{3}{8}$	1.65831	2073.0947	1.65910	2080.6902	1.65990	2088.2996
$\frac{13}{32}$	1.65833	2073.3319	1.65913	2080.9278	1.65992	2088.5376
$\frac{7}{16}$	1.65836	2073.5690	1.65915	2081.1654	1.65995	2088.7756
$\frac{15}{32}$	1.65838	2073.8062	1.65918	2081.4030	1.65997	2089.0137
$\frac{1}{2}$	1.65841	2074.0434	1.65920	2081.6406	1.66000	2089.2517
$\frac{17}{32}$	1.65843	2074.2806	1.65923	2081.8783	1.66002	2089.4898
$\frac{9}{16}$	1.65846	2074.5178	1.65925	2082.1159	1.66004	2089.7279
$\frac{19}{32}$	1.65848	2074.7551	1.65928	2082.3536	1.66007	2089.9660
$\frac{5}{8}$	1.65851	2074.9923	1.65930	2082.5913	1.66009	2090.2041
$\frac{21}{32}$	1.65853	2075.2296	1.65933	2082.8289	1.66012	2090.4422
$\frac{11}{16}$	1.65856	2075.4668	1.65935	2083.0667	1.66014	2090.6804
$\frac{23}{32}$	1.65858	2075.7041	1.65938	2083.3044	1.66017	2090.9185
$\frac{3}{4}$	1.65861	2075.9414	1.65940	2083.5421	1.66019	2091.1567
$\frac{25}{32}$	1.65863	2076.1787	1.65943	2083.7798	1.66022	2091.3949
$\frac{13}{16}$	1.65866	2076.4160	1.65945	2084.0176	1.66024	2091.6331
$\frac{27}{32}$	1.65868	2076.6534	1.65948	2084.2554	1.66027	2091.8713
$\frac{7}{8}$	1.65871	2076.8907	1.65950	2084.4932	1.66029	2092.1095
$\frac{29}{32}$	1.65873	2077.1281	1.65953	2084.7310	1.66032	2092.3477
$\frac{15}{16}$	1.65876	2077.3655	1.65955	2084.9688	1.66034	2092.5860
$\frac{31}{32}$	1.65878	2077.6029	1.65957	2085.2066	1.66037	2092.8242
1	1.65881	2077.8403	1.65960	2085.4444	1.66039	2093.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66039	2093.0625	1.66118	2100.6944	1.66197	2108.3403
$\frac{1}{32}$	1.66042	2093.3008	1.66121	2100.9332	1.66199	2108.5794
$\frac{1}{16}$	1.66044	2093.5391	1.66123	2101.1719	1.66202	2108.8186
$\frac{3}{32}$	1.66047	2093.7774	1.66126	2101.4107	1.66204	2109.0578
$\frac{1}{8}$	1.66049	2094.0157	1.66128	2101.6494	1.66207	2109.2970
$\frac{5}{32}$	1.66051	2094.2541	1.66130	2101.8882	1.66209	2109.5362
$\frac{3}{16}$	1.66054	2094.4924	1.66133	2102.1270	1.66212	2109.7754
$\frac{7}{32}$	1.66056	2094.7308	1.66135	2102.3658	1.66214	2110.0147
$\frac{1}{4}$	1.66059	2094.9692	1.66138	2102.6046	1.66217	2110.2539
$\frac{9}{32}$	1.66061	2095.2076	1.66140	2102.8434	1.66219	2110.4932
$\frac{5}{16}$	1.66064	2095.4460	1.66143	2103.0823	1.66222	2110.7324
$\frac{11}{32}$	1.66066	2095.6844	1.66145	2103.3211	1.66224	2110.9717
$\frac{3}{8}$	1.66069	2095.9229	1.66148	2103.5600	1.66227	2111.2110
$\frac{13}{32}$	1.66071	2096.1613	1.66150	2103.7989	1.66229	2111.4504
$\frac{7}{16}$	1.66074	2096.3998	1.66153	2104.0378	1.66232	2111.6897
$\frac{15}{32}$	1.66076	2096.6382	1.66155	2104.2767	1.66234	2111.9290
$\frac{1}{2}$	1.66079	2096.8767	1.66158	2104.5156	1.66236	2112.1684
$\frac{17}{32}$	1.66081	2097.1152	1.66160	2104.7546	1.66239	2112.4078
$\frac{9}{16}$	1.66084	2097.3538	1.66163	2104.9935	1.66241	2112.6472
$\frac{19}{32}$	1.66086	2097.5923	1.66165	2105.2325	1.66244	2112.8866
$\frac{5}{8}$	1.66089	2097.8308	1.66167	2105.4715	1.66246	2113.1260
$\frac{21}{32}$	1.66091	2098.0694	1.66170	2105.7105	1.66249	2113.3654
$\frac{11}{16}$	1.66093	2098.3080	1.66172	2105.9495	1.66251	2113.6048
$\frac{23}{32}$	1.66096	2098.5466	1.66175	2106.1885	1.66254	2113.8443
$\frac{3}{4}$	1.66098	2098.7852	1.66177	2106.4275	1.66256	2114.0838
$\frac{25}{32}$	1.66101	2099.0238	1.66180	2106.6666	1.66259	2114.3232
$\frac{13}{16}$	1.66103	2099.2624	1.66182	2106.9056	1.66261	2114.5627
$\frac{27}{32}$	1.66106	2099.5010	1.66185	2107.1447	1.66263	2114.8023
$\frac{7}{8}$	1.66108	2099.7397	1.66187	2107.3838	1.66266	2115.0418
$\frac{29}{32}$	1.66111	2099.9784	1.66190	2107.6229	1.66268	2115.2813
$\frac{15}{16}$	1.66113	2100.2170	1.66192	2107.8620	1.66271	2115.5209
$\frac{31}{32}$	1.66116	2100.4557	1.66195	2108.1011	1.66273	2115.7604
1	1.66118	2100.6944	1.66197	2108.3403	1.66276	2116.0000

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66276	2116.0000	1.66354	2123.6736	1.66433	2131.3611
$\frac{1}{32}$	1.66278	2116.2396	1.66357	2123.9136	1.66435	2131.6016
$\frac{1}{16}$	1.66281	2116.4792	1.66359	2124.1537	1.66438	2131.8420
$\frac{3}{32}$	1.66283	2116.7188	1.66362	2124.3937	1.66440	2132.0825
$\frac{1}{8}$	1.66286	2116.9584	1.66364	2124.6338	1.66443	2132.3230
$\frac{5}{32}$	1.66288	2117.1981	1.66367	2124.8739	1.66445	2132.5635
$\frac{3}{16}$	1.66291	2117.4377	1.66369	2125.1140	1.66448	2132.8041
$\frac{7}{32}$	1.66293	2117.6774	1.66372	2125.3541	1.66450	2133.0446
$\frac{1}{4}$	1.66295	2117.9171	1.66374	2125.5942	1.66452	2133.2852
$\frac{9}{32}$	1.66298	2118.1568	1.66376	2125.8343	1.66455	2133.5257
$\frac{5}{16}$	1.66300	2118.3965	1.66379	2126.0745	1.66457	2133.7663
$\frac{11}{32}$	1.66303	2118.6362	1.66381	2126.3146	1.66460	2134.0069
$\frac{3}{8}$	1.66305	2118.8760	1.66384	2126.5548	1.66462	2134.2475
$\frac{13}{32}$	1.66308	2119.1157	1.66386	2126.7950	1.66465	2134.4881
$\frac{7}{16}$	1.66310	2119.3555	1.66389	2127.0352	1.66467	2134.7288
$\frac{15}{32}$	1.66313	2119.5953	1.66391	2127.2754	1.66470	2134.9694
$\frac{1}{2}$	1.66315	2119.8351	1.66394	2127.5156	1.66472	2135.2101
$\frac{17}{32}$	1.66318	2120.0749	1.66396	2127.7559	1.66474	2135.4507
$\frac{9}{16}$	1.66320	2120.3147	1.66399	2127.9961	1.66477	2135.6914
$\frac{19}{32}$	1.66322	2120.5545	1.66401	2128.2364	1.66479	2135.9321
$\frac{5}{8}$	1.66325	2120.7944	1.66403	2128.4767	1.66482	2136.1729
$\frac{21}{32}$	1.66327	2121.0342	1.66406	2128.7170	1.66484	2136.4136
$\frac{11}{16}$	1.66330	2121.2741	1.66408	2128.9573	1.66487	2136.6543
$\frac{23}{32}$	1.66332	2121.5140	1.66411	2129.1976	1.66489	2136.8951
$\frac{3}{4}$	1.66335	2121.7539	1.66413	2129.4379	1.66492	2137.1359
$\frac{25}{32}$	1.66337	2121.9938	1.66416	2129.6783	1.66494	2137.3766
$\frac{13}{16}$	1.66340	2122.2338	1.66418	2129.9186	1.66496	2137.6174
$\frac{27}{32}$	1.66342	2122.4737	1.66421	2130.1590	1.66499	2137.8582
$\frac{7}{8}$	1.66345	2122.7136	1.66423	2130.3994	1.66501	2138.0991
$\frac{29}{32}$	1.66347	2122.9536	1.66426	2130.6398	1.66504	2138.3399
$\frac{15}{16}$	1.66349	2123.1936	1.66428	2130.8802	1.66506	2138.5806
$\frac{31}{32}$	1.66352	2123.4336	1.66430	2131.1207	1.66509	2138.8216
1	1.66354	2123.6736	1.66433	2131.3611	1.66511	2139.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66511	2139.0625	1.66589	2146.7778	1.66667	2154.5089
$\frac{1}{32}$	1.66514	2139.3094	1.66592	2147.0191	1.66670	2154.7487
$\frac{1}{16}$	1.66516	2139.5443	1.66594	2147.2604	1.66672	2154.9906
$\frac{3}{32}$	1.66519	2139.7852	1.66597	2147.5018	1.66675	2155.2323
$\frac{1}{8}$	1.66521	2140.0262	1.66599	2147.7432	1.66677	2155.4741
$\frac{5}{32}$	1.66523	2140.2671	1.66602	2147.9845	1.66680	2155.7159
$\frac{3}{16}$	1.66526	2140.5081	1.66604	2148.2259	1.66682	2155.9577
$\frac{7}{32}$	1.66528	2140.7490	1.66606	2148.4673	1.66684	2156.1996
$\frac{1}{4}$	1.66531	2140.9900	1.66609	2148.7088	1.66687	2156.4414
$\frac{9}{32}$	1.66533	2141.2310	1.66611	2148.9502	1.66689	2156.6833
$\frac{5}{16}$	1.66536	2141.4720	1.66614	2149.1917	1.66692	2156.9252
$\frac{11}{32}$	1.66538	2141.7131	1.66616	2149.4331	1.66694	2157.1671
$\frac{3}{8}$	1.66541	2141.9541	1.66619	2149.6746	1.66697	2157.4090
$\frac{13}{32}$	1.66543	2142.1952	1.66621	2149.9161	1.66699	2157.6509
$\frac{7}{16}$	1.66545	2142.4362	1.66624	2150.1576	1.66701	2157.8928
$\frac{15}{32}$	1.66548	2142.6773	1.66626	2150.3991	1.66704	2158.1348
$\frac{1}{2}$	1.66550	2142.9184	1.66628	2150.6406	1.66706	2158.3767
$\frac{17}{32}$	1.66553	2143.1595	1.66631	2150.8822	1.66709	2158.6187
$\frac{9}{16}$	1.66555	2143.4006	1.66633	2151.1237	1.66711	2158.8607
$\frac{19}{32}$	1.66558	2143.6418	1.66636	2151.3653	1.66714	2159.1027
$\frac{5}{8}$	1.66560	2143.8829	1.66638	2151.6069	1.66716	2159.3447
$\frac{21}{32}$	1.66562	2144.1241	1.66641	2151.8485	1.66719	2159.5866
$\frac{11}{16}$	1.66565	2144.3653	1.66643	2152.0901	1.66721	2159.8286
$\frac{23}{32}$	1.66567	2144.6065	1.66645	2152.3317	1.66723	2160.0709
$\frac{3}{4}$	1.66570	2144.8477	1.66648	2152.5734	1.66726	2160.3129
$\frac{25}{32}$	1.66572	2145.0889	1.66650	2152.8150	1.66728	2160.5550
$\frac{13}{16}$	1.66575	2145.3301	1.66653	2153.0567	1.66731	2160.7971
$\frac{27}{32}$	1.66577	2145.5713	1.66655	2153.2983	1.66733	2161.0392
$\frac{7}{8}$	1.66580	2145.8126	1.66658	2153.5400	1.66736	2161.2814
$\frac{29}{32}$	1.66582	2146.0539	1.66660	2153.7817	1.66738	2161.5235
$\frac{15}{16}$	1.66584	2146.2952	1.66663	2154.0235	1.66740	2161.7657
$\frac{31}{32}$	1.66587	2146.5365	1.66665	2154.2652	1.66743	2162.0079
1	1.66589	2146.7778	1.66667	2154.5069	1.66745	2162.2500

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66276	2116.0000	1.66354	2123.6736	1.66433	2131.3611
$\frac{1}{32}$	1.66278	2116.2396	1.66357	2123.9136	1.66435	2131.6016
$\frac{1}{16}$	1.66281	2116.4792	1.66359	2124.1537	1.66438	2131.8420
$\frac{3}{32}$	1.66283	2116.7188	1.66362	2124.3937	1.66440	2132.0825
$\frac{1}{8}$	1.66286	2116.9584	1.66364	2124.6338	1.66443	2132.3230
$\frac{5}{32}$	1.66288	2117.1981	1.66367	2124.8739	1.66445	2132.5635
$\frac{3}{16}$	1.66291	2117.4377	1.66369	2125.1140	1.66448	2132.8041
$\frac{7}{32}$	1.66293	2117.6774	1.66372	2125.3541	1.66450	2133.0446
$\frac{1}{4}$	1.66295	2117.9171	1.66374	2125.5942	1.66452	2133.2852
$\frac{9}{32}$	1.66298	2118.1568	1.66376	2125.8343	1.66455	2133.5257
$\frac{5}{16}$	1.66300	2118.3965	1.66379	2126.0745	1.66457	2133.7663
$\frac{11}{32}$	1.66303	2118.6362	1.66381	2126.3146	1.66460	2134.0069
$\frac{3}{8}$	1.66305	2118.8760	1.66384	2126.5548	1.66462	2134.2475
$\frac{13}{32}$	1.66308	2119.1157	1.66386	2126.7950	1.66465	2134.4881
$\frac{7}{16}$	1.66310	2119.3555	1.66389	2127.0352	1.66467	2134.7288
$\frac{15}{32}$	1.66313	2119.5953	1.66391	2127.2754	1.66470	2134.9694
$\frac{1}{2}$	1.66315	2119.8351	1.66394	2127.5156	1.66472	2135.2101
$\frac{17}{32}$	1.66318	2120.0749	1.66396	2127.7559	1.66474	2135.4507
$\frac{9}{16}$	1.66320	2120.3147	1.66399	2127.9961	1.66477	2135.6914
$\frac{19}{32}$	1.66322	2120.5545	1.66401	2128.2364	1.66479	2135.9321
$\frac{5}{8}$	1.66325	2120.7944	1.66403	2128.4767	1.66482	2136.1729
$\frac{21}{32}$	1.66327	2121.0342	1.66406	2128.7170	1.66484	2136.4136
$\frac{11}{16}$	1.66330	2121.2741	1.66408	2128.9573	1.66487	2136.6543
$\frac{23}{32}$	1.66332	2121.5140	1.66411	2129.1976	1.66489	2136.8951
$\frac{3}{4}$	1.66335	2121.7539	1.66413	2129.4379	1.66492	2137.1359
$\frac{25}{32}$	1.66337	2121.9938	1.66416	2129.6783	1.66494	2137.3766
$\frac{13}{16}$	1.66340	2122.2338	1.66418	2129.9186	1.66496	2137.6174
$\frac{27}{32}$	1.66342	2122.4737	1.66421	2130.1590	1.66499	2137.8582
$\frac{7}{8}$	1.66345	2122.7136	1.66423	2130.3994	1.66501	2138.0991
$\frac{29}{32}$	1.66347	2122.9536	1.66426	2130.6398	1.66504	2138.3399
$\frac{15}{16}$	1.66349	2123.1936	1.66428	2130.8802	1.66506	2138.5808
$\frac{31}{32}$	1.66352	2123.4336	1.66430	2131.1207	1.66509	2138.8216
1	1.66354	2123.6736	1.66433	2131.3611	1.66511	2139.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66511	2139.0625	1.66589	2146.7778	1.66667	2154.5069
$\frac{1}{32}$	1.66514	2139.3034	1.66592	2147.0191	1.66670	2154.7487
$\frac{1}{16}$	1.66516	2139.5443	1.66594	2147.2604	1.66672	2154.9905
$\frac{3}{32}$	1.66519	2139.7852	1.66597	2147.5018	1.66675	2155.2323
$\frac{1}{8}$	1.66521	2140.0262	1.66599	2147.7432	1.66677	2155.4741
$\frac{5}{32}$	1.66523	2140.2671	1.66602	2147.9845	1.66680	2155.7159
$\frac{3}{16}$	1.66526	2140.5081	1.66604	2148.2259	1.66682	2155.9577
$\frac{7}{32}$	1.66528	2140.7490	1.66606	2148.4673	1.66684	2156.1996
$\frac{1}{4}$	1.66531	2140.9900	1.66609	2148.7088	1.66687	2156.4414
$\frac{9}{32}$	1.66533	2141.2310	1.66611	2148.9502	1.66689	2156.6833
$\frac{5}{16}$	1.66536	2141.4720	1.66614	2149.1917	1.66692	2156.9252
$\frac{11}{32}$	1.66538	2141.7131	1.66616	2149.4331	1.66694	2157.1671
$\frac{3}{8}$	1.66541	2141.9541	1.66619	2149.6746	1.66697	2157.4090
$\frac{13}{32}$	1.66543	2142.1952	1.66621	2149.9161	1.66699	2157.6509
$\frac{7}{16}$	1.66545	2142.4362	1.66624	2150.1576	1.66701	2157.8928
$\frac{15}{32}$	1.66548	2142.6773	1.66626	2150.3991	1.66704	2158.1348
$\frac{1}{2}$	1.66550	2142.9184	1.66628	2150.6406	1.66706	2158.3767
$\frac{17}{32}$	1.66553	2143.1595	1.66631	2150.8822	1.66709	2158.6187
$\frac{9}{16}$	1.66555	2143.4006	1.66633	2151.1237	1.66711	2158.8607
$\frac{19}{32}$	1.66558	2143.6418	1.66636	2151.3653	1.66714	2159.1027
$\frac{5}{8}$	1.66560	2143.8829	1.66638	2151.6069	1.66716	2159.3447
$\frac{21}{32}$	1.66562	2144.1241	1.66641	2151.8485	1.66719	2159.5868
$\frac{11}{16}$	1.66565	2144.3653	1.66643	2152.0901	1.66721	2159.8288
$\frac{23}{32}$	1.66567	2144.6065	1.66645	2152.3317	1.66723	2160.0709
$\frac{3}{4}$	1.66570	2144.8477	1.66648	2152.5734	1.66726	2160.3129
$\frac{25}{32}$	1.66572	2145.0889	1.66650	2152.8150	1.66728	2160.5550
$\frac{13}{16}$	1.66575	2145.3301	1.66653	2153.0567	1.66731	2160.7971
$\frac{27}{32}$	1.66577	2145.5713	1.66655	2153.2983	1.66733	2161.0392
$\frac{7}{8}$	1.66580	2145.8126	1.66658	2153.5400	1.66736	2161.2814
$\frac{29}{32}$	1.66582	2146.0539	1.66660	2153.7817	1.66738	2161.5235
$\frac{15}{16}$	1.66584	2146.2952	1.66663	2154.0235	1.66740	2161.7657
$\frac{31}{32}$	1.66587	2146.5365	1.66665	2154.2652	1.66743	2162.0078
1	1.66589	2146.7778	1.66667	2154.5069	1.66745	2162.2500

# 46'

Fractions of an Inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66745	2162.2500	1.66823	2170.0069	1.66901	2177.7778
$\frac{1}{32}$	1.66748	2162.4922	1.66825	2170.2496	1.66903	2178.0208
$\frac{1}{16}$	1.66750	2162.7344	1.66828	2170.4922	1.66906	2178.2639
$\frac{3}{32}$	1.66753	2162.9766	1.66830	2170.7349	1.66908	2178.5070
$\frac{1}{8}$	1.66755	2163.2189	1.66833	2170.9775	1.66910	2178.7501
$\frac{5}{32}$	1.66757	2163.4611	1.66835	2171.2202	1.66913	2178.9932
$\frac{3}{16}$	1.66760	2163.7034	1.66838	2171.4629	1.66915	2179.2364
$\frac{7}{32}$	1.66762	2163.9456	1.66840	2171.7056	1.66918	2179.4795
$\frac{1}{4}$	1.66765	2164.1879	1.66842	2171.9484	1.66920	2179.7227
$\frac{9}{32}$	1.66767	2164.4302	1.66845	2172.1911	1.66922	2179.9658
$\frac{5}{16}$	1.66770	2164.6726	1.66847	2172.4338	1.66925	2180.2090
$\frac{11}{32}$	1.66772	2164.9149	1.66850	2172.6766	1.66927	2180.4522
$\frac{3}{8}$	1.66774	2165.1572	1.66852	2172.9194	1.66930	2180.6954
$\frac{13}{32}$	1.66777	2165.3996	1.66855	2173.1622	1.66932	2180.9386
$\frac{7}{16}$	1.66779	2165.6420	1.66857	2173.4050	1.66935	2181.1819
$\frac{15}{32}$	1.66782	2165.8843	1.66859	2173.6478	1.66937	2181.4251
$\frac{1}{2}$	1.66784	2166.1267	1.66862	2173.8906	1.66939	2181.6684
$\frac{17}{32}$	1.66787	2166.3691	1.66864	2174.1335	1.66942	2181.9117
$\frac{9}{16}$	1.66789	2166.6116	1.66867	2174.3763	1.66944	2182.1550
$\frac{19}{32}$	1.66791	2166.8540	1.66869	2174.6192	1.66947	2182.3983
$\frac{5}{8}$	1.66794	2167.0965	1.66872	2174.8621	1.66949	2182.6416
$\frac{21}{32}$	1.66796	2167.3389	1.66874	2175.1050	1.66952	2182.8849
$\frac{11}{16}$	1.66799	2167.5814	1.66876	2175.3479	1.66954	2183.1283
$\frac{23}{32}$	1.66801	2167.8239	1.66879	2175.5908	1.66956	2183.3716
$\frac{3}{4}$	1.66804	2168.0664	1.66881	2175.8338	1.66959	2183.6150
$\frac{25}{32}$	1.66806	2168.3089	1.66884	2176.0767	1.66961	2183.8584
$\frac{13}{16}$	1.66808	2168.5515	1.66886	2176.3197	1.66964	2184.1018
$\frac{27}{32}$	1.66811	2168.7940	1.66889	2176.5627	1.66966	2184.3452
$\frac{7}{8}$	1.66813	2169.0366	1.66891	2176.8057	1.66968	2184.5887
$\frac{29}{32}$	1.66816	2169.2791	1.66893	2177.0487	1.66971	2184.8321
$\frac{15}{16}$	1.66818	2169.5217	1.66896	2177.2917	1.66973	2185.0755
$\frac{31}{32}$	1.66821	2169.7643	1.66898	2177.5347	1.66976	2185.3190
1	1.66823	2170.0069	1.66901	2177.7778	1.66978	2185.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.66978	2185.5625	1.67056	2193.3611	1.67133	2201.1736
$\frac{1}{32}$	1.66981	2185.8060	1.67058	2193.6050	1.67135	2201.4180
$\frac{1}{16}$	1.66983	2186.0495	1.67060	2193.8490	1.67138	2201.6624
$\frac{3}{32}$	1.66985	2186.2930	1.67063	2194.0929	1.67140	2201.9067
$\frac{1}{8}$	1.66988	2186.5366	1.67065	2194.3369	1.67142	2202.1512
$\frac{5}{32}$	1.66990	2186.7801	1.67068	2194.5809	1.67145	2202.3956
$\frac{3}{16}$	1.66993	2187.0237	1.67070	2194.8249	1.67147	2202.6400
$\frac{7}{32}$	1.66995	2187.2673	1.67072	2195.0689	1.67150	2202.8844
$\frac{1}{4}$	1.66998	2187.5109	1.67075	2195.3129	1.67152	2203.1289
$\frac{9}{32}$	1.67000	2187.7545	1.67077	2195.5570	1.67154	2203.3734
$\frac{5}{16}$	1.67002	2187.9981	1.67080	2195.8010	1.67157	2203.6179
$\frac{11}{32}$	1.67005	2188.2417	1.67082	2196.0451	1.67159	2203.8624
$\frac{3}{8}$	1.67007	2188.4854	1.67084	2196.2892	1.67162	2204.1069
$\frac{13}{32}$	1.67010	2188.7290	1.67087	2196.5333	1.67164	2204.3514
$\frac{7}{16}$	1.67012	2188.9727	1.67089	2196.7774	1.67166	2204.5959
$\frac{15}{32}$	1.67014	2189.2164	1.67092	2197.0215	1.67169	2204.8405
$\frac{1}{2}$	1.67017	2189.4601	1.67094	2197.2656	1.67171	2205.0851
$\frac{17}{32}$	1.67019	2189.7038	1.67097	2197.5098	1.67174	2205.3297
$\frac{9}{16}$	1.67022	2189.9475	1.67099	2197.7539	1.67176	2205.5742
$\frac{19}{32}$	1.67024	2190.1913	1.67101	2197.9981	1.67178	2205.8189
$\frac{5}{8}$	1.67027	2190.4350	1.67104	2198.2423	1.67181	2206.0635
$\frac{21}{32}$	1.67029	2190.6788	1.67106	2198.4865	1.67183	2206.3081
$\frac{11}{16}$	1.67031	2190.9226	1.67109	2198.7307	1.67186	2206.5528
$\frac{23}{32}$	1.67034	2191.1663	1.67111	2198.9749	1.67188	2206.7974
$\frac{3}{4}$	1.67036	2191.4102	1.67113	2199.2192	1.67191	2207.0421
$\frac{25}{32}$	1.67039	2191.6540	1.67116	2199.4634	1.67193	2207.2868
$\frac{13}{16}$	1.67041	2191.8978	1.67118	2199.7077	1.67195	2207.5315
$\frac{27}{32}$	1.67043	2192.1417	1.67121	2199.9520	1.67198	2207.7762
$\frac{7}{8}$	1.67046	2192.3855	1.67123	2200.1963	1.67200	2208.0209
$\frac{29}{32}$	1.67048	2192.6294	1.67125	2200.4406	1.67203	2208.2657
$\frac{15}{16}$	1.67051	2192.8733	1.67128	2200.6849	1.67205	2208.5104
$\frac{31}{32}$	1.67053	2193.1172	1.67130	2200.9293	1.67207	2208.7552
1	1.67056	2193.3611	1.67133	2201.1736	1.67210	2209.0000



Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.67210	2209.0000	1.67287	2216.8403	1.67364	2224.6944
$\frac{1}{32}$	1.67212	2209.2448	1.67289	2217.0855	1.67366	2224.9401
$\frac{1}{16}$	1.67215	2209.4896	1.67292	2217.3308	1.67368	2225.1858
$\frac{3}{32}$	1.67217	2209.7344	1.67294	2217.5760	1.67371	2225.4315
$\frac{1}{8}$	1.67219	2209.9793	1.67296	2217.8213	1.67373	2225.6772
$\frac{5}{32}$	1.67222	2210.2241	1.67299	2218.0665	1.67376	2225.9229
$\frac{3}{16}$	1.67224	2210.4690	1.67301	2218.3118	1.67378	2226.1686
$\frac{7}{32}$	1.67227	2210.7139	1.67304	2218.5572	1.67380	2226.4144
$\frac{1}{4}$	1.67229	2210.9588	1.67306	2218.8025	1.67383	2226.6602
$\frac{9}{32}$	1.67231	2211.2037	1.67308	2219.0479	1.67385	2226.9059
$\frac{5}{16}$	1.67234	2211.4486	1.67311	2219.2932	1.67387	2227.1517
$\frac{11}{32}$	1.67236	2211.6935	1.67313	2219.5386	1.67390	2227.3975
$\frac{3}{8}$	1.67239	2211.9385	1.67316	2219.7840	1.67392	2227.6433
$\frac{13}{32}$	1.67241	2212.1834	1.67318	2220.0294	1.67395	2227.8892
$\frac{7}{16}$	1.67243	2212.4284	1.67320	2220.2748	1.67397	2228.1350
$\frac{15}{32}$	1.67246	2212.6734	1.67323	2220.5202	1.67399	2228.3809
$\frac{1}{2}$	1.67248	2212.9184	1.67325	2220.7656	1.67402	2228.6267
$\frac{17}{32}$	1.67251	2213.1634	1.67328	2221.0111	1.67404	2228.8726
$\frac{9}{16}$	1.67253	2213.4084	1.67330	2221.2565	1.67407	2229.1185
$\frac{19}{32}$	1.67255	2213.6535	1.67332	2221.5020	1.67409	2229.3644
$\frac{5}{8}$	1.67258	2213.8985	1.67335	2221.7475	1.67411	2229.6104
$\frac{21}{32}$	1.67260	2214.1436	1.67337	2221.9930	1.67414	2229.8563
$\frac{11}{16}$	1.67263	2214.3887	1.67340	2222.2385	1.67416	2230.1022
$\frac{23}{32}$	1.67265	2214.6338	1.67342	2222.4841	1.67419	2230.3482
$\frac{3}{4}$	1.67267	2214.8789	1.67344	2222.7296	1.67421	2230.5942
$\frac{25}{32}$	1.67270	2215.1240	1.67347	2222.9752	1.67423	2230.8402
$\frac{13}{16}$	1.67272	2215.3692	1.67349	2223.2207	1.67426	2231.0862
$\frac{27}{32}$	1.67275	2215.6143	1.67352	2223.4663	1.67428	2231.3322
$\frac{7}{8}$	1.67277	2215.8595	1.67354	2223.7119	1.67431	2231.5782
$\frac{29}{32}$	1.67280	2216.1047	1.67356	2223.9575	1.67433	2231.8243
$\frac{15}{16}$	1.67282	2216.3499	1.67359	2224.2032	1.67435	2232.0703
$\frac{31}{32}$	1.67284	2216.5951	1.67361	2224.4488	1.67438	2232.3164
1	1.67287	2216.8403	1.67364	2224.6944	1.67440	2232.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.67440	2232.5625	1.67517	2240.4444	1.67593	2248.3403
$\frac{1}{32}$	1.67443	2232.8086	1.67519	2240.6910	1.67595	2248.5872
$\frac{1}{16}$	1.67445	2233.0547	1.67521	2240.9375	1.67598	2248.8342
$\frac{3}{32}$	1.67447	2233.3008	1.67524	2241.1841	1.67600	2249.0812
$\frac{1}{8}$	1.67450	2233.5470	1.67526	2241.4307	1.67603	2249.3282
$\frac{5}{32}$	1.67452	2233.7931	1.67529	2241.6773	1.67605	2249.5753
$\frac{3}{16}$	1.67455	2234.0393	1.67531	2241.9239	1.67607	2249.8223
$\frac{7}{32}$	1.67457	2234.2855	1.67533	2242.1705	1.67610	2250.0693
$\frac{1}{4}$	1.67459	2234.5317	1.67536	2242.4171	1.67612	2250.3164
$\frac{9}{32}$	1.67462	2234.7779	1.67538	2242.6637	1.67615	2250.5635
$\frac{5}{16}$	1.67464	2235.0241	1.67541	2242.9104	1.67617	2250.8106
$\frac{11}{32}$	1.67467	2235.2704	1.67543	2243.1571	1.67619	2251.0577
$\frac{3}{8}$	1.67469	2235.5166	1.67545	2243.4038	1.67622	2251.3048
$\frac{13}{32}$	1.67471	2235.7629	1.67548	2243.6505	1.67624	2251.5519
$\frac{7}{16}$	1.67474	2236.0091	1.67550	2243.8972	1.67626	2251.7991
$\frac{15}{32}$	1.67476	2236.2554	1.67553	2244.1439	1.67629	2252.0462
$\frac{1}{2}$	1.67478	2236.5017	1.67555	2244.3906	1.67631	2252.2934
$\frac{17}{32}$	1.67481	2236.7481	1.67557	2244.6374	1.67634	2252.5406
$\frac{9}{16}$	1.67483	2236.9944	1.67560	2244.8841	1.67636	2252.7879
$\frac{19}{32}$	1.67486	2237.2407	1.67563	2245.1309	1.67638	2253.0350
$\frac{5}{8}$	1.67488	2237.4871	1.67564	2245.3777	1.67641	2253.2822
$\frac{21}{32}$	1.67490	2237.7335	1.67567	2245.6245	1.67643	2253.5295
$\frac{11}{16}$	1.67493	2237.9798	1.67569	2245.8713	1.67646	2253.7767
$\frac{23}{32}$	1.67495	2238.2262	1.67572	2246.1182	1.67648	2254.0240
$\frac{3}{4}$	1.67498	2238.4727	1.67574	2246.3650	1.67650	2254.2713
$\frac{25}{32}$	1.67500	2238.7191	1.67576	2246.6119	1.67653	2254.5186
$\frac{13}{16}$	1.67502	2238.9655	1.67579	2246.8588	1.67655	2254.7659
$\frac{27}{32}$	1.67505	2239.2120	1.67581	2247.1056	1.67657	2255.0132
$\frac{7}{8}$	1.67507	2239.4584	1.67584	2247.3525	1.67660	2255.2605
$\frac{29}{32}$	1.67510	2239.7049	1.67586	2247.5995	1.67663	2255.5079
$\frac{15}{16}$	1.67512	2239.9514	1.67588	2247.8464	1.67665	2255.7552
$\frac{31}{32}$	1.67514	2240.1979	1.67591	2248.0933	1.67667	2256.0026
1	1.67517	2240.4444	1.67593	2248.3403	1.67669	2256.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.67669	2256.2500	1.67745	2264.1736	1.67821	2272.1111
$\frac{1}{32}$	1.67672	2256.4974	1.67748	2264.4214	1.67824	2272.3594
$\frac{1}{16}$	1.67674	2256.7448	1.67750	2264.6693	1.67826	2272.6077
$\frac{3}{32}$	1.67677	2256.9922	1.67753	2264.9172	1.67829	2272.8560
$\frac{1}{8}$	1.67679	2257.2397	1.67755	2265.1650	1.67831	2273.1043
$\frac{5}{32}$	1.67681	2257.4871	1.67757	2265.4129	1.67833	2273.3526
$\frac{3}{16}$	1.67684	2257.7346	1.67760	2265.6606	1.67836	2273.6009
$\frac{7}{32}$	1.67686	2257.9821	1.67762	2265.9088	1.67838	2273.8493
$\frac{1}{4}$	1.67688	2258.2296	1.67764	2266.1567	1.67840	2274.0977
$\frac{9}{32}$	1.67691	2258.4771	1.67767	2266.4046	1.67843	2274.3460
$\frac{5}{16}$	1.67693	2258.7246	1.67769	2266.6526	1.67845	2274.5944
$\frac{11}{32}$	1.67696	2258.9722	1.67772	2266.9006	1.67848	2274.8428
$\frac{3}{8}$	1.67698	2259.2197	1.67774	2267.1485	1.67850	2275.0913
$\frac{13}{32}$	1.67700	2259.4673	1.67776	2267.3965	1.67852	2275.3397
$\frac{7}{16}$	1.67703	2259.7149	1.67779	2267.6446	1.67855	2275.5881
$\frac{15}{32}$	1.67705	2259.9625	1.67781	2267.8926	1.67857	2275.8366
$\frac{1}{2}$	1.67707	2260.2101	1.67783	2268.1406	1.67859	2276.0851
$\frac{17}{32}$	1.67710	2260.4577	1.67786	2268.3887	1.67862	2276.3336
$\frac{9}{16}$	1.67712	2260.7053	1.67788	2268.6367	1.67864	2276.5821
$\frac{19}{32}$	1.67715	2260.9530	1.67791	2268.8848	1.67867	2276.8306
$\frac{5}{8}$	1.67717	2261.2006	1.67793	2269.1329	1.67869	2277.0791
$\frac{21}{32}$	1.67719	2261.4483	1.67795	2269.3810	1.67871	2277.3276
$\frac{11}{16}$	1.67722	2261.6960	1.67798	2269.6292	1.67874	2277.5762
$\frac{23}{32}$	1.67724	2261.9437	1.67800	2269.8773	1.67876	2277.8248
$\frac{3}{4}$	1.67726	2262.1914	1.67802	2270.1254	1.67878	2278.0734
$\frac{25}{32}$	1.67729	2262.4391	1.67805	2270.3736	1.67881	2278.3219
$\frac{13}{16}$	1.67731	2262.6869	1.67807	2270.6218	1.67883	2278.5706
$\frac{27}{32}$	1.67734	2262.9346	1.67810	2270.8700	1.67885	2278.8192
$\frac{7}{8}$	1.67736	2263.1824	1.67812	2271.1182	1.67888	2279.0678
$\frac{29}{32}$	1.67738	2263.4302	1.67814	2271.3664	1.67890	2279.3165
$\frac{15}{16}$	1.67741	2263.6780	1.67817	2271.6146	1.67893	2279.5651
$\frac{31}{32}$	1.67743	2263.9258	1.67819	2271.8629	1.67895	2279.8138
1	1.67745	2264.1736	1.67821	2272.1111	1.67897	2280.0625

Fractions of an Inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.67897	2280.0625	1.67973	2288.0278	1.68049	2296.0069
$\frac{1}{32}$	1.67900	2280.3112	1.67975	2288.2769	1.68051	2296.2565
$\frac{1}{16}$	1.67902	2280.5599	1.67978	2288.5261	1.68053	2296.5061
$\frac{3}{32}$	1.67904	2280.8087	1.67980	2288.7752	1.68056	2296.7557
$\frac{1}{8}$	1.67907	2281.0574	1.67983	2289.0244	1.68058	2297.0053
$\frac{5}{32}$	1.67909	2281.3062	1.67985	2289.2736	1.68060	2297.2549
$\frac{3}{16}$	1.67912	2281.5549	1.67987	2289.5228	1.68063	2297.5046
$\frac{7}{32}$	1.67914	2281.8037	1.67990	2289.7720	1.68065	2297.7542
$\frac{1}{4}$	1.67916	2282.0525	1.67992	2290.0213	1.68068	2298.0039
$\frac{9}{32}$	1.67919	2282.3013	1.67994	2290.2705	1.68070	2298.2536
$\frac{5}{16}$	1.67921	2282.5502	1.67997	2290.5198	1.68072	2298.5033
$\frac{11}{32}$	1.67923	2282.7990	1.67999	2290.7690	1.68075	2298.7530
$\frac{3}{8}$	1.67926	2283.0479	1.68001	2291.0183	1.68077	2299.0027
$\frac{13}{32}$	1.67928	2283.2967	1.68004	2291.2676	1.68079	2299.2524
$\frac{7}{16}$	1.67930	2283.5456	1.68006	2291.5170	1.68082	2299.5022
$\frac{15}{32}$	1.67933	2283.7945	1.68009	2291.7663	1.68084	2299.7520
$\frac{1}{2}$	1.67935	2284.0434	1.68011	2292.0156	1.68086	2300.0017
$\frac{17}{32}$	1.67938	2284.2923	1.68013	2292.2650	1.68089	2300.2515
$\frac{9}{16}$	1.67940	2284.5413	1.68016	2292.5144	1.68091	2300.5013
$\frac{19}{32}$	1.67942	2284.7902	1.68018	2292.7637	1.68093	2300.7511
$\frac{5}{8}$	1.67945	2285.0392	1.68020	2293.0131	1.68096	2301.0010
$\frac{21}{32}$	1.67947	2285.2881	1.68023	2293.2625	1.68098	2301.2508
$\frac{11}{16}$	1.67949	2285.5371	1.68025	2293.5120	1.68101	2301.5007
$\frac{23}{32}$	1.67952	2285.7861	1.68027	2293.7614	1.68103	2301.7505
$\frac{3}{4}$	1.67954	2286.0352	1.68030	2294.0109	1.68105	2302.0004
$\frac{25}{32}$	1.67957	2286.2842	1.68032	2294.2603	1.68108	2302.2503
$\frac{13}{16}$	1.67959	2286.5332	1.68034	2294.5098	1.68110	2302.5002
$\frac{27}{32}$	1.67961	2286.7823	1.68037	2294.7593	1.68112	2302.7502
$\frac{7}{8}$	1.67964	2287.0314	1.68039	2295.0088	1.68115	2303.0001
$\frac{29}{32}$	1.67966	2287.2804	1.68042	2295.2583	1.68117	2303.2501
$\frac{15}{16}$	1.67968	2287.5295	1.68044	2295.5078	1.68119	2303.5000
$\frac{31}{32}$	1.67971	2287.7787	1.68046	2295.7574	1.68122	2303.7500
1	1.67973	2288.0278	1.68049	2296.0069	1.68124	2304.0000

# 48'

Fractions of an inch.	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.68124	2304.0000	1.68199	2312.0000	1.68275	2320.0278
$\frac{1}{32}$	1.68126	2304.2500	1.68202	2312.2574	1.68277	2320.2787
$\frac{1}{16}$	1.68129	2304.5000	1.68204	2312.5078	1.68279	2320.5295
$\frac{3}{32}$	1.68131	2304.7501	1.68207	2312.7583	1.68282	2320.7804
$\frac{1}{8}$	1.68134	2305.0001	1.68209	2313.0088	1.68284	2321.0314
$\frac{5}{32}$	1.68136	2305.2502	1.68211	2313.2593	1.68286	2321.2823
$\frac{3}{16}$	1.68138	2305.5002	1.68214	2313.5098	1.68289	2321.5332
$\frac{7}{32}$	1.68141	2305.7503	1.68216	2313.7603	1.68291	2321.7842
$\frac{1}{4}$	1.68143	2306.0004	1.68218	2314.0109	1.68293	2322.0352
$\frac{9}{32}$	1.68145	2306.2505	1.68221	2314.2614	1.68296	2322.2861
$\frac{5}{16}$	1.68148	2306.5007	1.68223	2314.5120	1.68298	2322.5371
$\frac{11}{32}$	1.68150	2306.7508	1.68225	2314.7625	1.68300	2322.7881
$\frac{3}{8}$	1.68152	2307.0010	1.68228	2315.0131	1.68303	2323.0392
$\frac{13}{32}$	1.68155	2307.2511	1.68230	2315.2637	1.68305	2323.2902
$\frac{7}{16}$	1.68157	2307.5013	1.68232	2315.5143	1.68308	2323.5413
$\frac{15}{32}$	1.68159	2307.7515	1.68235	2315.7650	1.68310	2323.7923
$\frac{1}{2}$	1.68162	2308.0017	1.68237	2316.0156	1.68312	2324.0434
$\frac{17}{32}$	1.68164	2308.2520	1.68239	2316.2663	1.68315	2324.2945
$\frac{9}{16}$	1.68167	2308.5022	1.68242	2316.5170	1.68317	2324.5456
$\frac{19}{32}$	1.68169	2308.7524	1.68244	2316.7676	1.68319	2324.7967
$\frac{5}{8}$	1.68171	2309.0027	1.68246	2317.0183	1.68322	2325.0479
$\frac{21}{32}$	1.68174	2309.2530	1.68249	2317.2690	1.68324	2325.2990
$\frac{11}{16}$	1.68176	2309.5033	1.68251	2317.5198	1.68326	2325.5502
$\frac{23}{32}$	1.68178	2309.7536	1.68254	2317.7705	1.68329	2325.8013
$\frac{3}{4}$	1.68181	2310.0039	1.68256	2318.0213	1.68331	2326.0525
$\frac{25}{32}$	1.68183	2310.2542	1.68258	2318.2720	1.68333	2326.3037
$\frac{13}{16}$	1.68185	2310.5046	1.68261	2318.5228	1.68336	2326.5549
$\frac{27}{32}$	1.68188	2310.7549	1.68263	2318.7736	1.68338	2326.8062
$\frac{7}{8}$	1.68190	2311.0053	1.68265	2319.0244	1.68340	2327.0574
$\frac{29}{32}$	1.68192	2311.2557	1.68268	2319.2752	1.68343	2327.3087
$\frac{15}{16}$	1.68195	2311.5061	1.68270	2319.5261	1.68345	2327.5599
$\frac{31}{32}$	1.68197	2311.7565	1.68272	2319.7769	1.68347	2327.8112
1	1.68199	2312.0069	1.68275	2320.0278	1.68350	2328.0625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.68350	2328.0625	1.68425	2336.1111	1.68499	2344.1736
$\frac{1}{32}$	1.68352	2328.3138	1.68427	2336.3629	1.68502	2344.4258
$\frac{1}{16}$	1.68354	2328.5651	1.68429	2336.6146	1.68504	2344.6780
$\frac{3}{32}$	1.68357	2328.8165	1.68432	2336.8664	1.68506	2344.9302
$\frac{1}{8}$	1.68359	2329.0678	1.68434	2337.1182	1.68509	2345.1824
$\frac{5}{32}$	1.68361	2329.3192	1.68436	2337.3700	1.68511	2345.4346
$\frac{3}{16}$	1.68364	2329.5706	1.68439	2337.6218	1.68514	2345.6869
$\frac{7}{32}$	1.68366	2329.8219	1.68441	2337.8736	1.68516	2345.9391
$\frac{1}{4}$	1.68368	2330.0734	1.68443	2338.1254	1.68518	2346.1914
$\frac{9}{32}$	1.68371	2330.3248	1.68446	2338.3773	1.68521	2346.4437
$\frac{5}{16}$	1.68373	2330.5762	1.68448	2338.6292	1.68523	2346.6960
$\frac{11}{32}$	1.68376	2330.8276	1.68450	2338.8810	1.68525	2346.9483
$\frac{3}{8}$	1.68378	2331.0791	1.68453	2339.1329	1.68528	2347.2006
$\frac{13}{32}$	1.68380	2331.3306	1.68455	2339.3848	1.68530	2347.4530
$\frac{7}{16}$	1.68383	2331.5821	1.68457	2339.6367	1.68532	2347.7053
$\frac{15}{32}$	1.68385	2331.8336	1.68460	2339.8887	1.68535	2347.9577
$\frac{1}{2}$	1.68387	2332.0851	1.68462	2340.1406	1.68537	2348.2101
$\frac{17}{32}$	1.68390	2332.3366	1.68464	2340.3926	1.68539	2348.4625
$\frac{9}{16}$	1.68392	2332.5881	1.68467	2340.6446	1.68542	2348.7149
$\frac{19}{32}$	1.68394	2332.8397	1.68469	2340.8965	1.68544	2348.9673
$\frac{5}{8}$	1.68397	2333.0913	1.68471	2341.1485	1.68546	2349.2197
$\frac{21}{32}$	1.68399	2333.3428	1.68474	2341.4006	1.68549	2349.4722
$\frac{11}{16}$	1.68401	2333.5944	1.68476	2341.6526	1.68551	2349.7246
$\frac{23}{32}$	1.68404	2333.8460	1.68478	2341.9046	1.68553	2349.9771
$\frac{3}{4}$	1.68406	2334.0977	1.68481	2342.1567	1.68556	2350.2296
$\frac{25}{32}$	1.68408	2334.3493	1.68483	2342.4088	1.68558	2350.4821
$\frac{13}{16}$	1.68411	2334.6009	1.68485	2342.6608	1.68560	2350.7346
$\frac{27}{32}$	1.68413	2334.8526	1.68488	2342.9129	1.68563	2350.9871
$\frac{7}{8}$	1.68415	2335.1043	1.68490	2343.1650	1.68565	2351.2397
$\frac{29}{32}$	1.68418	2335.3560	1.68492	2343.4172	1.68567	2351.4922
$\frac{15}{16}$	1.68420	2335.6077	1.68495	2343.6693	1.68570	2351.7448
$\frac{31}{32}$	1.68422	2335.8594	1.68497	2343.9214	1.68572	2351.9974
1	1.68425	2336.1111	1.68499	2344.1736	1.68574	2352.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.68574	2352.2500	1.68649	2360.3408	1.68723	2368.4444
$\frac{1}{64}$	1.68577	2352.5026	1.68651	2360.5933	1.68725	2368.6979
$\frac{1}{32}$	1.68579	2352.7552	1.68653	2360.8464	1.68728	2368.9514
$\frac{3}{64}$	1.68581	2353.0079	1.68656	2361.0995	1.68730	2369.2049
$\frac{1}{8}$	1.68584	2353.2605	1.68658	2361.3525	1.68732	2369.4584
$\frac{5}{64}$	1.68586	2353.5132	1.68660	2361.6056	1.68735	2369.7120
$\frac{3}{16}$	1.68588	2353.7659	1.68663	2361.8588	1.68737	2369.9655
$\frac{7}{64}$	1.68590	2354.0186	1.68665	2362.1119	1.68739	2370.2191
$\frac{1}{4}$	1.68593	2354.2713	1.68667	2362.3650	1.68742	2370.4727
$\frac{9}{64}$	1.68595	2354.5240	1.68670	2362.6182	1.68744	2370.7262
$\frac{5}{16}$	1.68597	2354.7767	1.68672	2362.8713	1.68746	2370.9798
$\frac{11}{64}$	1.68600	2355.0295	1.68674	2363.1245	1.68749	2371.2335
$\frac{3}{8}$	1.68602	2355.2822	1.68677	2363.3777	1.68751	2371.4871
$\frac{13}{64}$	1.68604	2355.5350	1.68679	2363.6309	1.68753	2371.7407
$\frac{7}{16}$	1.68607	2355.7878	1.68681	2363.8841	1.68756	2371.9944
$\frac{15}{64}$	1.68609	2356.0406	1.68684	2364.1374	1.68758	2372.2481
$\frac{1}{2}$	1.68611	2356.2934	1.68686	2364.3906	1.68760	2372.5017
$\frac{17}{64}$	1.68614	2356.5462	1.68688	2364.6439	1.68763	2372.7554
$\frac{9}{16}$	1.68616	2356.7991	1.68691	2364.8972	1.68765	2373.0091
$\frac{19}{64}$	1.68618	2357.0519	1.68693	2365.1505	1.68767	2373.2629
$\frac{5}{8}$	1.68621	2357.3048	1.68695	2365.4038	1.68770	2373.5166
$\frac{21}{64}$	1.68623	2357.5577	1.68698	2365.6571	1.68772	2373.7704
$\frac{11}{16}$	1.68625	2357.8106	1.68700	2365.9104	1.68774	2374.0241
$\frac{23}{64}$	1.68628	2358.0635	1.68702	2366.1637	1.68777	2374.2779
$\frac{3}{4}$	1.68630	2358.3164	1.68705	2366.4171	1.68779	2374.5317
$\frac{25}{64}$	1.68632	2358.5693	1.68707	2366.6705	1.68781	2374.7855
$\frac{13}{16}$	1.68635	2358.8223	1.68709	2366.9239	1.68784	2375.0393
$\frac{27}{64}$	1.68637	2359.0753	1.68712	2367.1773	1.68786	2375.2931
$\frac{7}{8}$	1.68639	2359.3282	1.68714	2367.4307	1.68788	2375.5470
$\frac{29}{64}$	1.68642	2359.5812	1.68716	2367.6841	1.68791	2375.8008
$\frac{15}{16}$	1.68644	2359.8342	1.68719	2367.9375	1.68793	2376.0547
$\frac{31}{64}$	1.68646	2360.0872	1.68721	2368.1910	1.68795	2376.3086
1	1.68649	2360.3403	1.68723	2368.4444	1.68797	2376.5625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.68797	2376.5625	1.68872	2384.6944	1.68946	2392.8403
$\frac{1}{32}$	1.68800	2376.8164	1.68874	2384.9488	1.68948	2393.0951
$\frac{1}{16}$	1.68802	2377.0703	1.68876	2385.2032	1.68950	2393.3499
$\frac{3}{32}$	1.68804	2377.3243	1.68879	2385.4575	1.68953	2393.6047
$\frac{1}{8}$	1.68807	2377.5782	1.68881	2385.7119	1.68955	2393.8595
$\frac{5}{32}$	1.68809	2377.8322	1.68883	2385.9663	1.68957	2394.1143
$\frac{3}{16}$	1.68811	2378.0862	1.68886	2386.2207	1.68960	2394.3692
$\frac{7}{32}$	1.68814	2378.3402	1.68888	2386.4752	1.68962	2394.6240
$\frac{1}{4}$	1.68816	2378.5942	1.68890	2386.7296	1.68964	2394.8789
$\frac{9}{32}$	1.68818	2378.8482	1.68892	2386.9841	1.68966	2395.1338
$\frac{5}{16}$	1.68821	2379.1022	1.68895	2387.2385	1.68969	2395.3887
$\frac{11}{32}$	1.68823	2379.3563	1.68897	2387.4930	1.68971	2395.6436
$\frac{3}{8}$	1.68825	2379.6104	1.68899	2387.7475	1.68973	2395.8985
$\frac{13}{32}$	1.68828	2379.8644	1.68902	2388.0020	1.68976	2396.1535
$\frac{7}{16}$	1.68830	2380.1185	1.68904	2388.2565	1.68978	2396.4084
$\frac{15}{32}$	1.68832	2380.3726	1.68906	2388.5111	1.68980	2396.6634
$\frac{1}{2}$	1.68835	2380.6267	1.68909	2388.7656	1.68983	2396.9184
$\frac{17}{32}$	1.68837	2380.8809	1.68911	2389.0202	1.68985	2397.1734
$\frac{9}{16}$	1.68839	2381.1350	1.68913	2389.2748	1.68987	2397.4284
$\frac{19}{32}$	1.68842	2381.3892	1.68916	2389.5294	1.68990	2397.6834
$\frac{5}{8}$	1.68844	2381.6433	1.68918	2389.7840	1.68992	2397.9385
$\frac{21}{32}$	1.68846	2381.8975	1.68920	2390.0386	1.68994	2398.1935
$\frac{11}{16}$	1.68848	2382.1517	1.68923	2390.2932	1.68997	2398.4486
$\frac{23}{32}$	1.68851	2382.4059	1.68925	2390.5479	1.68999	2398.7037
$\frac{3}{4}$	1.68853	2382.6602	1.68927	2390.8025	1.69001	2398.9588
$\frac{25}{32}$	1.68855	2382.9144	1.68929	2391.0572	1.69003	2399.2139
$\frac{13}{16}$	1.68858	2383.1686	1.68932	2391.3119	1.69006	2399.4690
$\frac{27}{32}$	1.68860	2383.4229	1.68934	2391.5666	1.69008	2399.7241
$\frac{7}{8}$	1.68862	2383.6772	1.68936	2391.8213	1.69010	2399.9793
$\frac{29}{32}$	1.68865	2383.9315	1.68939	2392.0760	1.69013	2400.2344
$\frac{15}{16}$	1.68867	2384.1858	1.68941	2392.3308	1.69015	2400.4896
$\frac{31}{32}$	1.68869	2384.4401	1.68943	2392.5855	1.69017	2400.7448
1	1.68872	2384.6944	1.68946	2392.8403	1.69020	2401.0000



	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
	1.69020	2401.0000	1.69093	2409.1736	1.69167	2417.3611
2	1.69022	2401.2552	1.69096	2409.4293	1.69169	2417.6172
6	1.69024	2401.5104	1.69098	2409.6849	1.69172	2417.8733
2	1.69027	2401.7657	1.69100	2409.9406	1.69174	2418.1294
1	1.69029	2402.0209	1.69103	2410.1963	1.69176	2418.3855
2	1.69031	2402.2762	1.69105	2410.4520	1.69179	2418.6417
6	1.69033	2402.5315	1.69107	2410.7077	1.69181	2418.8978
2	1.69036	2402.7868	1.69110	2410.9634	1.69183	2419.1540
1	1.69038	2403.0421	1.69112	2411.2192	1.69185	2419.4102
2	1.69040	2403.2974	1.69114	2411.4749	1.69188	2419.6663
3	1.69043	2403.5528	1.69116	2411.7307	1.69190	2419.9226
2	1.69045	2403.8081	1.69119	2411.9865	1.69192	2420.1788
	1.69047	2404.0635	1.69121	2412.2423	1.69195	2420.4350
1	1.69050	2404.3189	1.69123	2412.4981	1.69197	2420.6913
	1.69052	2404.5742	1.69126	2412.7539	1.69199	2420.9475
1	1.69054	2404.8297	1.69128	2413.0098	1.69202	2421.2038
	1.69057	2405.0851	1.69130	2413.2656	1.69204	2421.4601
	1.69059	2405.3405	1.69133	2413.5215	1.69206	2421.7164
	1.69061	2405.5959	1.69135	2413.7774	1.69208	2421.9727
	1.69063	2405.8514	1.69137	2414.0333	1.69211	2422.2290
	1.69066	2406.1069	1.69139	2414.2892	1.69213	2422.4854
	1.69068	2406.3624	1.69142	2414.5451	1.69215	2422.7417
	1.69070	2406.6179	1.69144	2414.8010	1.69218	2422.9981
	1.69073	2406.8734	1.69146	2415.0570	1.69220	2423.2545
	1.69075	2407.1289	1.69149	2415.3129	1.69222	2423.5109
	1.69077	2407.3844	1.69151	2415.5689	1.69225	2423.7673
	1.69080	2407.6400	1.69153	2415.8249	1.69227	2424.0237
	1.69082	2407.8956	1.69156	2416.0809	1.69229	2424.2801
	1.69084	2408.1511	1.69158	2416.3369	1.69231	2424.5366
	1.69086	2408.4067	1.69160	2416.5929	1.69234	2424.7930
	1.69089	2408.6624	1.69162	2416.8490	1.69236	2425.0495
	1.69091	2408.9180	1.69165	2417.1050	1.69238	2425.3060
	1.69093	2409.1736	1.69167	2417.3611	1.69241	2425.5625

Fractions of an inch.	3"		4"		5"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.69241	2425.5625	1.69314	2433.7778	1.69387	2442.0069
$\frac{1}{32}$	1.69243	2425.8190	1.69316	2434.0347	1.69390	2442.2643
$\frac{1}{16}$	1.69245	2426.0755	1.69319	2434.2917	1.69392	2442.5217
$\frac{3}{32}$	1.69248	2426.3321	1.69321	2434.5487	1.69394	2442.7791
$\frac{1}{8}$	1.69250	2426.5887	1.69323	2434.8057	1.69396	2443.0366
$\frac{5}{32}$	1.69252	2426.8452	1.69326	2435.0627	1.69399	2443.2940
$\frac{3}{16}$	1.69254	2427.1018	1.69328	2435.3197	1.69401	2443.5515
$\frac{7}{32}$	1.69257	2427.3584	1.69330	2435.5767	1.69403	2443.8089
$\frac{1}{4}$	1.69259	2427.6150	1.69332	2435.8338	1.69406	2444.0664
$\frac{9}{32}$	1.69261	2427.8716	1.69335	2436.0908	1.69408	2444.3239
$\frac{5}{16}$	1.69264	2428.1283	1.69337	2436.3479	1.69410	2444.5814
$\frac{11}{32}$	1.69266	2428.3849	1.69339	2436.6050	1.69413	2444.8389
$\frac{3}{8}$	1.69268	2428.6416	1.69342	2436.8621	1.69415	2445.0965
$\frac{13}{32}$	1.69270	2428.8983	1.69344	2437.1192	1.69417	2445.3540
$\frac{7}{16}$	1.69273	2429.1550	1.69346	2437.3763	1.69419	2445.6116
$\frac{15}{32}$	1.69275	2429.4117	1.69348	2437.6335	1.69422	2445.8691
$\frac{1}{2}$	1.69277	2429.6684	1.69351	2437.8906	1.69424	2446.1267
$\frac{17}{32}$	1.69280	2429.9251	1.69353	2438.1478	1.69426	2446.3843
$\frac{9}{16}$	1.69282	2430.1819	1.69355	2438.4050	1.69429	2446.6420
$\frac{19}{32}$	1.69284	2430.4386	1.69358	2438.6622	1.69431	2446.8996
$\frac{5}{8}$	1.69287	2430.6954	1.69360	2438.9194	1.69433	2447.1572
$\frac{21}{32}$	1.69289	2430.9522	1.69362	2439.1766	1.69435	2447.4149
$\frac{11}{16}$	1.69291	2431.2090	1.69364	2439.4338	1.69438	2447.6726
$\frac{23}{32}$	1.69293	2431.4658	1.69367	2439.6911	1.69440	2447.9302
$\frac{3}{4}$	1.69296	2431.7227	1.69369	2439.9484	1.69442	2448.1879
$\frac{25}{32}$	1.69298	2431.9795	1.69371	2440.2056	1.69445	2448.4456
$\frac{13}{16}$	1.69300	2432.2364	1.69374	2440.4629	1.69447	2448.7034
$\frac{27}{32}$	1.69303	2432.4932	1.69376	2440.7202	1.69449	2448.9611
$\frac{7}{8}$	1.69305	2432.7501	1.69378	2440.9775	1.69451	2449.2189
$\frac{29}{32}$	1.69307	2433.0070	1.69380	2441.2349	1.69454	2449.4766
$\frac{15}{16}$	1.69309	2433.2639	1.69383	2441.4922	1.69456	2449.7344
$\frac{31}{32}$	1.69312	2433.5208	1.69385	2441.7496	1.69458	2449.9922
1	1.69314	2433.7778	1.69387	2442.0069	1.69461	2450.2500

Fractions of an inch.	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.69461	2450.2500	1.69534	2458.5069	1.69607	2466.7778
$\frac{1}{32}$	1.69463	2450.5078	1.69536	2458.7652	1.69609	2467.0365
$\frac{1}{16}$	1.69465	2450.7657	1.69538	2459.0235	1.69611	2467.2952
$\frac{3}{32}$	1.69467	2451.0235	1.69540	2459.2817	1.69613	2467.5539
$\frac{1}{8}$	1.69470	2451.2814	1.69543	2459.5400	1.69616	2467.8126
$\frac{5}{32}$	1.69472	2451.5392	1.69545	2459.7983	1.69618	2468.0714
$\frac{3}{16}$	1.69474	2451.7971	1.69547	2460.0567	1.69620	2468.3301
$\frac{7}{32}$	1.69477	2452.0550	1.69550	2460.3150	1.69622	2468.5889
$\frac{1}{4}$	1.69479	2452.3129	1.69552	2460.5734	1.69625	2468.8477
$\frac{9}{32}$	1.69481	2452.5709	1.69554	2460.8317	1.69627	2469.1065
$\frac{5}{16}$	1.69483	2452.8288	1.69556	2461.0901	1.69629	2469.3653
$\frac{11}{32}$	1.69486	2453.0868	1.69559	2461.3485	1.69632	2469.6241
$\frac{3}{8}$	1.69488	2453.3447	1.69561	2461.6069	1.69634	2469.8829
$\frac{13}{32}$	1.69490	2453.6027	1.69563	2461.8653	1.69636	2470.1418
$\frac{7}{16}$	1.69492	2453.8607	1.69565	2462.1237	1.69638	2470.4006
$\frac{15}{32}$	1.69495	2454.1187	1.69568	2462.3822	1.69641	2470.6595
$\frac{1}{2}$	1.69497	2454.3767	1.69570	2462.6406	1.69643	2470.9184
$\frac{17}{32}$	1.69499	2454.6348	1.69572	2462.8991	1.69645	2471.1773
$\frac{9}{16}$	1.69502	2454.8928	1.69575	2463.1576	1.69647	2471.4362
$\frac{19}{32}$	1.69504	2455.1509	1.69577	2463.4161	1.69650	2471.6952
$\frac{5}{8}$	1.69506	2455.4090	1.69579	2463.6746	1.69652	2471.9541
$\frac{21}{32}$	1.69508	2455.6671	1.69581	2463.9331	1.69654	2472.2131
$\frac{11}{16}$	1.69511	2455.9252	1.69584	2464.1917	1.69657	2472.4720
$\frac{23}{32}$	1.69513	2456.1833	1.69586	2464.4502	1.69659	2472.7310
$\frac{3}{4}$	1.69515	2456.4414	1.69588	2464.7088	1.69661	2472.9900
$\frac{25}{32}$	1.69518	2456.6996	1.69591	2464.9673	1.69663	2473.2490
$\frac{13}{16}$	1.69520	2456.9577	1.69593	2465.2259	1.69666	2473.5081
$\frac{27}{32}$	1.69522	2457.2159	1.69595	2465.4845	1.69668	2473.7671
$\frac{7}{8}$	1.69524	2457.4741	1.69597	2465.7432	1.69670	2474.0262
$\frac{29}{32}$	1.69527	2457.7323	1.69600	2466.0018	1.69672	2474.2852
$\frac{15}{16}$	1.69529	2457.9905	1.69602	2466.2604	1.69675	2474.5443
$\frac{31}{32}$	1.69531	2458.2487	1.69604	2466.5191	1.69677	2474.8034
1	1.69534	2458.5069	1.69607	2466.7778	1.69679	2475.0625

Fractions of an inch.	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.69679	2475.0625	1.69752	2483.3611	1.69825	2491.6736
$\frac{1}{32}$	1.69682	2475.3216	1.69754	2483.6207	1.69827	2491.9336
$\frac{1}{16}$	1.69684	2475.5808	1.69757	2483.8802	1.69829	2492.1936
$\frac{3}{32}$	1.69686	2475.8399	1.69759	2484.1398	1.69831	2492.4536
$\frac{1}{8}$	1.69688	2476.0991	1.69761	2484.3994	1.69834	2492.7137
$\frac{5}{32}$	1.69691	2476.3582	1.69763	2484.6590	1.69836	2492.9737
$\frac{3}{16}$	1.69693	2476.6174	1.69766	2484.9186	1.69838	2493.2338
$\frac{7}{32}$	1.69695	2476.8766	1.69768	2485.1783	1.69840	2493.4938
$\frac{1}{4}$	1.69697	2477.1359	1.69770	2485.4379	1.69843	2493.7539
$\frac{9}{32}$	1.69700	2477.3951	1.69772	2485.6976	1.69845	2494.0140
$\frac{5}{16}$	1.69702	2477.6543	1.69775	2485.9573	1.69847	2494.2741
$\frac{11}{32}$	1.69704	2477.9136	1.69777	2486.2170	1.69849	2494.5342
$\frac{3}{8}$	1.69707	2478.1729	1.69779	2486.4767	1.69852	2494.7944
$\frac{13}{32}$	1.69709	2478.4321	1.69781	2486.7364	1.69854	2495.0545
$\frac{7}{16}$	1.69711	2478.6914	1.69784	2486.9961	1.69856	2495.3147
$\frac{15}{32}$	1.69713	2478.9507	1.69786	2487.2559	1.69859	2495.5749
$\frac{1}{2}$	1.69716	2479.2101	1.69788	2487.5156	1.69861	2495.8351
$\frac{17}{32}$	1.69718	2479.4694	1.69791	2487.7754	1.69863	2496.0953
$\frac{9}{16}$	1.69720	2479.7288	1.69793	2488.0352	1.69865	2496.3555
$\frac{19}{32}$	1.69722	2479.9881	1.69795	2488.2950	1.69868	2496.6157
$\frac{5}{8}$	1.69725	2480.2475	1.69797	2488.5548	1.69870	2496.8760
$\frac{21}{32}$	1.69727	2480.5069	1.69800	2488.8146	1.69872	2497.1362
$\frac{11}{16}$	1.69729	2480.7663	1.69802	2489.0745	1.69874	2497.3965
$\frac{23}{32}$	1.69732	2481.0257	1.69804	2489.3343	1.69877	2497.6568
$\frac{3}{4}$	1.69734	2481.2852	1.69806	2489.5942	1.69879	2497.9171
$\frac{25}{32}$	1.69736	2481.5446	1.69809	2489.8541	1.69881	2498.1774
$\frac{13}{16}$	1.69738	2481.8041	1.69811	2490.1140	1.69883	2498.4377
$\frac{27}{32}$	1.69741	2482.0635	1.69813	2490.3739	1.69886	2498.6981
$\frac{7}{8}$	1.69743	2482.3230	1.69815	2490.6338	1.69888	2498.9584
$\frac{29}{32}$	1.69745	2482.5825	1.69818	2490.8937	1.69890	2499.2188
$\frac{15}{16}$	1.69747	2482.8420	1.69820	2491.1537	1.69892	2499.4792
$\frac{31}{32}$	1.69750	2483.1016	1.69822	2491.4136	1.69895	2499.7396
1	1.69752	2483.3611	1.69825	2491.6736	1.69897	2500.0000

# 50'

Fraction of an inch	0'		1"		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.69897	2500.0000	1.69969	2508.3403	1.70042	2516.6944
1/16	1.69902	2500.5209	1.69974	2508.8620	1.70046	2517.2170
1/8	1.69906	2501.0418	1.69978	2509.3838	1.70051	2517.7397
3/16	1.69911	2501.5627	1.69983	2509.9056	1.70055	2518.2624
1/4	1.69915	2502.0838	1.69987	2510.4275	1.70060	2518.7852
5/16	1.69920	2502.6048	1.69992	2510.9495	1.70064	2519.3080
3/8	1.69924	2503.1260	1.69996	2511.4715	1.70069	2519.8308
7/16	1.69929	2503.6472	1.70001	2511.9935	1.70073	2520.3538
1/2	1.69933	2504.1684	1.70005	2512.5156	1.70078	2520.8767
9/16	1.69938	2504.6897	1.70010	2513.0378	1.70082	2521.3998
5/8	1.69942	2505.2110	1.70014	2513.5600	1.70087	2521.9229
11/16	1.69947	2505.7324	1.70019	2514.0823	1.70091	2522.4460
3/4	1.69951	2506.2539	1.70023	2514.6046	1.70096	2522.9692
13/16	1.69956	2506.7754	1.70028	2515.1270	1.70100	2523.4924
7/8	1.69960	2507.2970	1.70033	2515.6494	1.70105	2524.0157
15/16	1.69965	2507.8186	1.70037	2516.1719	1.70109	2524.5391
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70114	2525.0625	1.70186	2533.4444	1.70257	2541.8403
1/16	1.70118	2525.5860	1.70190	2533.9688	1.70262	2542.3655
1/8	1.70123	2526.1095	1.70195	2534.4932	1.70266	2542.8907
3/16	1.70127	2526.6331	1.70199	2535.0176	1.70271	2543.4160
1/4	1.70132	2527.1567	1.70204	2535.5421	1.70275	2543.9414
5/16	1.70136	2527.6804	1.70208	2536.0667	1.70280	2544.4668
3/8	1.70141	2528.2041	1.70213	2536.5913	1.70284	2544.9923
7/16	1.70145	2528.7279	1.70217	2537.1159	1.70289	2545.5178
1/2	1.70150	2529.2517	1.70222	2537.6406	1.70293	2546.0434
9/16	1.70154	2529.7756	1.70226	2538.1654	1.70298	2546.5690
5/8	1.70159	2530.2996	1.70230	2538.6902	1.70302	2547.0947
11/16	1.70163	2530.8236	1.70235	2539.2151	1.70307	2547.6205
3/4	1.70168	2531.3477	1.70239	2539.7400	1.70311	2548.1463
13/16	1.70172	2531.8718	1.70244	2540.2650	1.70316	2548.6721
7/8	1.70177	2532.3959	1.70248	2540.7900	1.70320	2549.1980
15/16	1.70181	2532.9202	1.70253	2541.3151	1.70325	2549.7240

# 50'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70329	2550.2500	1.70401	2558.6736	1.70472	2567.1111
$\frac{1}{16}$	1.70334	2550.7761	1.70405	2559.2005	1.70477	2567.6389
$\frac{1}{8}$	1.70338	2551.3022	1.70410	2559.7275	1.70481	2568.1668
$\frac{3}{16}$	1.70343	2551.8284	1.70414	2560.2546	1.70486	2568.6947
$\frac{1}{4}$	1.70347	2552.3546	1.70419	2560.7817	1.70490	2569.2227
$\frac{5}{16}$	1.70352	2552.8809	1.70423	2561.3088	1.70495	2569.7507
$\frac{3}{8}$	1.70356	2553.4072	1.70428	2561.8360	1.70499	2570.2788
$\frac{7}{16}$	1.70360	2553.9336	1.70432	2562.3633	1.70503	2570.8069
$\frac{1}{2}$	1.70365	2554.4601	1.70437	2562.8906	1.70508	2571.3351
$\frac{9}{16}$	1.70369	2554.9866	1.70441	2563.4180	1.70512	2571.8633
$\frac{5}{8}$	1.70374	2555.5131	1.70445	2563.9454	1.70517	2572.3916
$\frac{11}{16}$	1.70378	2556.0397	1.70450	2564.4729	1.70521	2572.9199
$\frac{3}{4}$	1.70383	2556.5664	1.70454	2565.0004	1.70526	2573.4484
$\frac{13}{16}$	1.70387	2557.0931	1.70459	2565.5280	1.70530	2573.9768
$\frac{7}{8}$	1.70392	2557.6199	1.70463	2566.0557	1.70535	2574.5053
$\frac{15}{16}$	1.70396	2558.1467	1.70468	2566.5834	1.70539	2575.0339

Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70544	2575.5625	1.70615	2584.0278	1.70686	2592.5069
$\frac{1}{16}$	1.70548	2576.0912	1.70619	2584.5573	1.70690	2593.0374
$\frac{1}{8}$	1.70553	2576.6199	1.70624	2585.0869	1.70695	2593.5678
$\frac{3}{16}$	1.70557	2577.1487	1.70628	2585.6166	1.70699	2594.0983
$\frac{1}{4}$	1.70561	2577.6775	1.70633	2586.1463	1.70704	2594.6289
$\frac{5}{16}$	1.70566	2578.2064	1.70637	2586.6760	1.70708	2595.1595
$\frac{3}{8}$	1.70570	2578.7354	1.70642	2587.2058	1.70713	2595.6902
$\frac{7}{16}$	1.70575	2579.2644	1.70646	2587.7357	1.70717	2596.2209
$\frac{1}{2}$	1.70579	2579.7934	1.70650	2588.2656	1.70722	2596.7517
$\frac{9}{16}$	1.70584	2580.3225	1.70655	2588.7956	1.70726	2597.2826
$\frac{5}{8}$	1.70588	2580.8517	1.70659	2589.3256	1.70730	2597.8135
$\frac{11}{16}$	1.70593	2581.3809	1.70664	2589.8557	1.70735	2598.3444
$\frac{3}{4}$	1.70597	2581.9102	1.70668	2590.3859	1.70739	2598.8754
$\frac{13}{16}$	1.70602	2582.4395	1.70673	2590.9160	1.70744	2599.4065
$\frac{7}{8}$	1.70606	2582.9689	1.70677	2591.4463	1.70748	2599.9376
$\frac{15}{16}$	1.70610	2583.4983	1.70682	2591.9766	1.70753	2600.4688

# 51'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70757	2601.0000	1.70828	2609.5069	1.70899	2618.0278
$\frac{1}{16}$	1.70761	2601.5313	1.70832	2610.0391	1.70903	2618.5608
$\frac{1}{8}$	1.70766	2602.0626	1.70837	2610.5713	1.70908	2619.0939
$\frac{3}{16}$	1.70770	2602.5940	1.70841	2611.1035	1.70912	2619.6270
$\frac{1}{4}$	1.70775	2603.1254	1.70846	2611.6359	1.70916	2620.1602
$\frac{5}{16}$	1.70779	2603.6569	1.70850	2612.1682	1.70921	2620.6934
$\frac{3}{8}$	1.70784	2604.1885	1.70854	2612.7006	1.70925	2621.2267
$\frac{7}{16}$	1.70788	2604.7201	1.70859	2613.2331	1.70930	2621.7600
$\frac{1}{2}$	1.70792	2605.2517	1.70863	2613.7656	1.70934	2622.2934
$\frac{9}{16}$	1.70797	2605.7834	1.70868	2614.2982	1.70938	2622.8269
$\frac{5}{8}$	1.70801	2606.3152	1.70872	2614.8308	1.70943	2623.3604
$\frac{11}{16}$	1.70806	2606.8470	1.70877	2615.3635	1.70947	2623.8939
$\frac{3}{4}$	1.70810	2607.3789	1.70881	2615.8963	1.70952	2624.4275
$\frac{13}{16}$	1.70815	2607.9108	1.70885	2616.4291	1.70956	2624.9612
$\frac{7}{8}$	1.70819	2608.4428	1.70890	2616.9619	1.70961	2625.4949
$\frac{15}{16}$	1.70823	2608.9749	1.70894	2617.4948	1.70965	2626.0287

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70969	2626.5625	1.71040	2635.1111	1.71110	2643.6736
$\frac{1}{16}$	1.70974	2627.0964	1.71044	2635.6459	1.71115	2644.2092
$\frac{1}{8}$	1.70978	2627.6303	1.71049	2636.1807	1.71119	2644.7449
$\frac{3}{16}$	1.70983	2628.1643	1.71053	2636.7155	1.71124	2645.2806
$\frac{1}{4}$	1.70987	2628.6984	1.71058	2637.2504	1.71128	2645.8164
$\frac{5}{16}$	1.70991	2629.2324	1.71062	2637.7854	1.71132	2646.3522
$\frac{3}{8}$	1.70996	2629.7666	1.71066	2638.3204	1.71137	2646.8881
$\frac{7}{16}$	1.71000	2630.3008	1.71071	2638.8555	1.71141	2647.4241
$\frac{1}{2}$	1.71005	2630.8351	1.71075	2639.3906	1.71146	2647.9601
$\frac{9}{16}$	1.71009	2631.3694	1.71080	2639.9258	1.71150	2648.4961
$\frac{5}{8}$	1.71014	2631.9038	1.71084	2640.4610	1.71154	2649.0322
$\frac{11}{16}$	1.71018	2632.4382	1.71088	2640.9963	1.71159	2649.5684
$\frac{3}{4}$	1.71022	2632.9727	1.71093	2641.5317	1.71163	2650.1046
$\frac{13}{16}$	1.71027	2633.5072	1.71097	2642.0671	1.71168	2650.6409
$\frac{7}{8}$	1.71031	2634.0418	1.71102	2642.6025	1.71172	2651.1772
$\frac{15}{16}$	1.71036	2634.5764	1.71106	2643.1380	1.71176	2651.7136

# 51'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71181	2652.2500	1.71251	2660.8403	1.71321	2669.4444
$\frac{1}{16}$	1.71185	2652.7865	1.71255	2661.3776	1.71325	2669.9827
$\frac{1}{8}$	1.71190	2653.3230	1.71260	2661.9150	1.71330	2670.5209
$\frac{3}{16}$	1.71194	2653.8596	1.71264	2662.4525	1.71334	2671.0593
$\frac{1}{4}$	1.71198	2654.3963	1.71268	2662.9900	1.71339	2671.5977
$\frac{5}{16}$	1.71203	2654.9330	1.71273	2663.5276	1.71343	2672.1361
$\frac{3}{8}$	1.71207	2655.4697	1.71277	2664.0652	1.71347	2672.6746
$\frac{7}{16}$	1.71211	2656.0065	1.71282	2664.6029	1.71352	2673.2131
$\frac{1}{2}$	1.71216	2656.5434	1.71286	2665.1406	1.71356	2673.7517
$\frac{9}{16}$	1.71220	2657.0803	1.71290	2665.6784	1.71360	2674.2904
$\frac{5}{8}$	1.71225	2657.6173	1.71295	2666.2163	1.71365	2674.8291
$\frac{11}{16}$	1.71229	2658.1543	1.71299	2666.7542	1.71369	2675.3679
$\frac{3}{4}$	1.71233	2658.6914	1.71304	2667.2921	1.71374	2675.9067
$\frac{13}{16}$	1.71238	2659.2285	1.71308	2667.8301	1.71378	2676.4456
$\frac{7}{8}$	1.71242	2659.7657	1.71312	2668.3682	1.71382	2676.9845
$\frac{15}{16}$	1.71247	2660.3030	1.71317	2668.9063	1.71387	2677.5235

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71391	2678.0625	1.71461	2686.6944	1.71531	2695.3403
$\frac{1}{16}$	1.71395	2678.6016	1.71465	2687.2344	1.71535	2695.8811
$\frac{1}{8}$	1.71400	2679.1407	1.71470	2687.7744	1.71539	2696.4220
$\frac{3}{16}$	1.71404	2679.6799	1.71474	2688.3145	1.71544	2696.9629
$\frac{1}{4}$	1.71409	2680.2192	1.71478	2688.8546	1.71548	2697.5039
$\frac{5}{16}$	1.71413	2680.7585	1.71483	2689.3948	1.71552	2698.0449
$\frac{3}{8}$	1.71417	2681.2979	1.71487	2689.9350	1.71557	2698.5860
$\frac{7}{16}$	1.71422	2681.8373	1.71491	2690.4753	1.71561	2699.1272
$\frac{1}{2}$	1.71426	2682.3767	1.71496	2691.0156	1.71566	2699.6684
$\frac{9}{16}$	1.71430	2682.9163	1.71500	2691.5560	1.71570	2700.2097
$\frac{5}{8}$	1.71435	2683.4558	1.71505	2692.0965	1.71574	2700.7510
$\frac{11}{16}$	1.71439	2683.9955	1.71509	2692.6370	1.71579	2701.2923
$\frac{3}{4}$	1.71443	2684.5352	1.71513	2693.1775	1.71583	2701.8338
$\frac{13}{16}$	1.71448	2685.0749	1.71518	2693.7181	1.71587	2702.3752
$\frac{7}{8}$	1.71452	2685.6147	1.71522	2694.2588	1.71592	2702.9168
$\frac{15}{16}$	1.71457	2686.1545	1.71526	2694.7995	1.71596	2703.4584



# 52'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71600	2704.0000	1.71670	2712.6736	1.71739	2721.3611
1/16	1.71605	2704.5417	1.71674	2713.2162	1.71744	2721.9045
1/8	1.71609	2705.0834	1.71679	2713.7588	1.71748	2722.4480
3/16	1.71613	2705.6252	1.71683	2714.3015	1.71752	2722.9916
1/4	1.71618	2706.1671	1.71687	2714.8442	1.71757	2723.5352
5/16	1.71622	2706.7090	1.71692	2715.3870	1.71761	2724.0788
3/8	1.71626	2707.2510	1.71696	2715.9298	1.71765	2724.6225
7/16	1.71631	2707.7930	1.71700	2716.4727	1.71770	2725.1663
1/2	1.71635	2708.3351	1.71705	2717.0156	1.71774	2725.7101
9/16	1.71639	2708.8772	1.71709	2717.5586	1.71778	2726.2539
5/8	1.71644	2709.4194	1.71713	2718.1017	1.71783	2726.7979
11/16	1.71648	2709.9616	1.71718	2718.6448	1.71787	2727.3418
3/4	1.71653	2710.5039	1.71722	2719.1879	1.71791	2727.8859
13/16	1.71657	2711.0463	1.71726	2719.7311	1.71796	2728.4299
7/8	1.71661	2711.5887	1.71731	2720.2744	1.71800	2728.9741
15/16	1.71666	2712.1311	1.71735	2720.8177	1.71804	2729.5183
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71809	2730.0625	1.71878	2738.7778	1.71947	2747.5069
1/16	1.71813	2730.6068	1.71882	2739.3229	1.71951	2748.0530
1/8	1.71817	2731.1512	1.71886	2739.8682	1.71956	2748.5991
3/16	1.71822	2731.6956	1.71891	2740.4134	1.71960	2749.1452
1/4	1.71826	2732.2400	1.71895	2740.9588	1.71964	2749.6914
5/16	1.71830	2732.7845	1.71899	2741.5042	1.71969	2750.2377
3/8	1.71835	2733.3291	1.71904	2742.0496	1.71973	2750.7840
7/16	1.71839	2733.8737	1.71908	2742.5951	1.71977	2751.3303
1/2	1.71843	2734.4184	1.71912	2743.1406	1.71981	2751.8767
9/16	1.71848	2734.9631	1.71917	2743.6862	1.71986	2752.4232
5/8	1.71852	2735.5079	1.71921	2744.2319	1.71990	2752.9697
11/16	1.71856	2736.0528	1.71925	2744.7776	1.71994	2753.5163
3/4	1.71861	2736.5977	1.71930	2745.3234	1.71999	2754.0629
13/16	1.71865	2737.1426	1.71934	2745.8692	1.72003	2754.6096
7/8	1.71869	2737.6876	1.71938	2746.4150	1.72007	2755.1564
15/16	1.71874	2738.2327	1.71943	2746.9610	1.72012	2755.7032

# 52'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72016	2756.2500	1.72085	2765.0069	1.72154	2773.7778
1/16	1.72020	2756.7969	1.72089	2765.5547	1.72158	2774.3264
1/8	1.72025	2757.3439	1.72093	2766.1025	1.72162	2774.8751
3/16	1.72029	2757.8909	1.72098	2766.6504	1.72166	2775.4239
1/4	1.72033	2758.4379	1.72102	2767.1984	1.72171	2775.9727
5/16	1.72037	2758.9851	1.72106	2767.7463	1.72175	2776.5215
3/8	1.72042	2759.5322	1.72111	2768.2944	1.72179	2777.0704
7/16	1.72046	2760.0795	1.72115	2768.8425	1.72184	2777.6194
1/2	1.72050	2760.6267	1.72119	2769.3906	1.72188	2778.1684
9/16	1.72055	2761.1741	1.72124	2769.9388	1.72192	2778.7175
5/8	1.72059	2761.7215	1.72128	2770.4871	1.72197	2779.2666
11/16	1.72063	2762.2689	1.72132	2771.0354	1.72201	2779.8158
3/4	1.72068	2762.8164	1.72136	2771.5838	1.72205	2780.3650
13/16	1.72072	2763.3640	1.72141	2772.1322	1.72209	2780.9143
7/8	1.72076	2763.9116	1.72145	2772.6807	1.72214	2781.4637
15/16	1.72081	2764.4592	1.72149	2773.2292	1.72218	2782.0130

Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72222	2782.5625	1.72291	2791.3611	1.72359	2800.1736
1/16	1.72227	2783.1120	1.72295	2791.9115	1.72364	2800.7249
1/8	1.72231	2783.6616	1.72299	2792.4619	1.72368	2801.2762
3/16	1.72235	2784.2112	1.72304	2793.0124	1.72372	2801.8275
1/4	1.72239	2784.7609	1.72308	2793.5629	1.72376	2802.3789
5/16	1.72244	2785.3106	1.72312	2794.1135	1.72381	2802.9304
3/8	1.72248	2785.8604	1.72316	2794.6642	1.72385	2803.4819
7/16	1.72252	2786.4102	1.72321	2795.2149	1.72389	2804.0334
1/2	1.72257	2786.9601	1.72325	2795.7656	1.72393	2804.5851
9/16	1.72261	2787.5100	1.72329	2796.3164	1.72398	2805.1367
5/8	1.72265	2788.0600	1.72334	2796.8673	1.72402	2805.6885
11/16	1.72269	2788.6101	1.72338	2797.4182	1.72406	2806.2403
3/4	1.72274	2789.1602	1.72342	2797.9692	1.72411	2806.7921
13/16	1.72278	2789.7103	1.72346	2798.5202	1.72415	2807.3440
7/8	1.72282	2790.2605	1.72351	2799.0713	1.72419	2807.8959
15/16	1.72287	2790.8108	1.72355	2799.6224	1.72423	2808.4479

# 53'

Fraction of an inch	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72428	2809.0000	1.72496	2817.8403	1.72564	2826.6944
1/16	1.72432	2809.5521	1.72500	2818.3933	1.72568	2827.2483
1/8	1.72436	2810.1043	1.72504	2818.9463	1.72572	2827.8022
3/16	1.72440	2810.6565	1.72509	2819.4994	1.72577	2828.3561
1/4	1.72445	2811.2088	1.72513	2820.0525	1.72581	2828.9102
5/16	1.72449	2811.7611	1.72517	2820.6057	1.72585	2829.4642
3/8	1.72453	2812.3135	1.72521	2821.1590	1.72589	2830.0183
7/16	1.72457	2812.8659	1.72526	2821.7123	1.72594	2830.5725
1/2	1.72462	2813.4184	1.72530	2822.2656	1.72598	2831.1267
9/16	1.72466	2813.9709	1.72534	2822.8190	1.72602	2831.6810
5/8	1.72470	2814.5235	1.72538	2823.3725	1.72606	2832.2354
11/16	1.72475	2815.0762	1.72543	2823.9260	1.72611	2832.7897
3/4	1.72479	2815.6289	1.72547	2824.4796	1.72615	2833.3442
13/16	1.72483	2816.1817	1.72551	2825.0332	1.72619	2833.8987
7/8	1.72487	2816.7345	1.72555	2825.5869	1.72623	2834.4532
15/16	1.72492	2817.2874	1.72560	2826.1407	1.72628	2835.0078

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72632	2835.5625	1.72700	2844.4444	1.72768	2853.3403
1/16	1.72636	2836.1172	1.72704	2845.0000	1.72772	2853.8967
1/8	1.72640	2836.6720	1.72708	2845.5557	1.72776	2854.4532
3/16	1.72645	2837.2268	1.72713	2846.1114	1.72780	2855.0098
1/4	1.72649	2837.7817	1.72717	2846.6671	1.72785	2855.5664
5/16	1.72653	2838.3366	1.72721	2847.2229	1.72789	2856.1231
3/8	1.72657	2838.8916	1.72725	2847.7788	1.72793	2856.6798
7/16	1.72662	2839.4466	1.72730	2848.3347	1.72797	2857.2366
1/2	1.72666	2840.0017	1.72734	2848.8906	1.72802	2857.7934
9/16	1.72670	2840.5569	1.72738	2849.4466	1.72806	2858.3503
5/8	1.72674	2841.1121	1.72742	2850.0027	1.72810	2858.9072
11/16	1.72679	2841.6673	1.72747	2850.5588	1.72814	2859.4642
3/4	1.72683	2842.2227	1.72751	2851.1150	1.72818	2860.0213
13/16	1.72687	2842.7780	1.72755	2851.6713	1.72823	2860.5784
7/8	1.72691	2843.3334	1.72759	2852.2275	1.72827	2861.1355
15/16	1.72696	2843.8889	1.72763	2852.7839	1.72831	2861.6927

# 53'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72835	2862.2500	1.72903	2871.1736	1.72970	2880.1111
$\frac{1}{16}$	1.72840	2862.8073	1.72907	2871.7318	1.72975	2880.6702
$\frac{1}{8}$	1.72844	2863.3647	1.72911	2872.2900	1.72979	2881.2293
$\frac{3}{16}$	1.72848	2863.9221	1.72916	2872.8483	1.72983	2881.7884
$\frac{1}{4}$	1.72852	2864.4796	1.72920	2873.4067	1.72987	2882.3477
$\frac{5}{16}$	1.72857	2865.0371	1.72924	2873.9651	1.72992	2882.9069
$\frac{3}{8}$	1.72861	2865.5947	1.72928	2874.5235	1.72996	2883.4663
$\frac{7}{16}$	1.72865	2866.1524	1.72933	2875.0821	1.73000	2884.0256
$\frac{1}{2}$	1.72869	2866.7101	1.72937	2875.6406	1.73004	2884.5851
$\frac{9}{16}$	1.72873	2867.2678	1.72941	2876.1992	1.73008	2885.1446
$\frac{5}{8}$	1.72878	2867.8256	1.72945	2876.7579	1.73013	2885.7041
$\frac{11}{16}$	1.72882	2868.3835	1.72949	2877.3167	1.73017	2886.2637
$\frac{3}{4}$	1.72886	2868.9414	1.72954	2877.8754	1.73021	2886.8234
$\frac{13}{16}$	1.72890	2869.4994	1.72958	2878.4343	1.73025	2887.3831
$\frac{7}{8}$	1.72895	2870.0574	1.72962	2878.9932	1.73029	2887.9428
$\frac{15}{16}$	1.72899	2870.6155	1.72966	2879.5521	1.73034	2888.5026

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.73038	2889.0625	1.73105	2898.0278	1.73172	2907.0069
$\frac{1}{16}$	1.73042	2889.6224	1.73109	2898.5886	1.73177	2907.5686
$\frac{1}{8}$	1.73046	2890.1824	1.73114	2899.1494	1.73181	2908.1303
$\frac{3}{16}$	1.73050	2890.7424	1.73118	2899.7103	1.73185	2908.6921
$\frac{1}{4}$	1.73055	2891.3025	1.73122	2900.2713	1.73189	2909.2539
$\frac{5}{16}$	1.73059	2891.8627	1.73126	2900.8323	1.73193	2909.8158
$\frac{3}{8}$	1.73063	2892.4229	1.73130	2901.3933	1.73197	2910.3777
$\frac{7}{16}$	1.73067	2892.9831	1.73135	2901.9545	1.73202	2910.9397
$\frac{1}{2}$	1.73072	2893.5434	1.73139	2902.5156	1.73206	2911.5017
$\frac{9}{16}$	1.73076	2894.1038	1.73143	2903.0768	1.73210	2912.0638
$\frac{5}{8}$	1.73080	2894.6642	1.73147	2903.6381	1.73214	2912.6260
$\frac{11}{16}$	1.73084	2895.2246	1.73151	2904.1995	1.73218	2913.1882
$\frac{3}{4}$	1.73088	2895.7852	1.73156	2904.7609	1.73223	2913.7504
$\frac{13}{16}$	1.73093	2896.3457	1.73160	2905.3228	1.73227	2914.3127
$\frac{7}{8}$	1.73097	2896.9064	1.73164	2905.8838	1.73231	2914.8751
$\frac{15}{16}$	1.73101	2897.4670	1.73168	2906.4453	1.73235	2915.4375

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.73239	2916.0000	1.73306	2925.0069	1.73373	2934.0278
$\frac{1}{16}$	1.73244	2916.5625	1.73311	2925.5703	1.73377	2934.5920
$\frac{1}{8}$	1.73248	2917.1251	1.73315	2926.1338	1.73382	2935.1564
$\frac{3}{16}$	1.73252	2917.6877	1.73319	2926.6973	1.73386	2935.7207
$\frac{1}{4}$	1.73256	2918.2504	1.73323	2927.2609	1.73390	2936.2852
$\frac{5}{16}$	1.73260	2918.8132	1.73327	2927.8245	1.73394	2936.8496
$\frac{3}{8}$	1.73265	2919.3760	1.73331	2928.3881	1.73398	2937.4142
$\frac{7}{16}$	1.73269	2919.9388	1.73336	2928.9519	1.73402	2937.9788
$\frac{1}{2}$	1.73273	2920.5017	1.73340	2929.5156	1.73407	2938.5434
$\frac{9}{16}$	1.73277	2921.0647	1.73344	2930.0795	1.73411	2939.1081
$\frac{5}{8}$	1.73281	2921.6277	1.73348	2930.6433	1.73415	2939.6729
$\frac{11}{16}$	1.73285	2922.1908	1.73352	2931.2073	1.73419	2940.2377
$\frac{3}{4}$	1.73290	2922.7539	1.73357	2931.7713	1.73423	2940.8025
$\frac{13}{16}$	1.73294	2923.3171	1.73361	2932.3353	1.73427	2941.3674
$\frac{7}{8}$	1.73298	2923.8803	1.73365	2932.8994	1.73432	2941.9324
$\frac{15}{16}$	1.73302	2924.4436	1.73369	2933.4636	1.73436	2942.4974
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.73440	2943.0625	1.73507	2952.1111	1.73573	2961.1736
$\frac{1}{16}$	1.73444	2943.6276	1.73511	2952.6771	1.73577	2961.7405
$\frac{1}{8}$	1.73448	2944.1928	1.73515	2953.2432	1.73582	2962.3074
$\frac{3}{16}$	1.73452	2944.7581	1.73519	2953.8093	1.73586	2962.8744
$\frac{1}{4}$	1.73457	2945.3234	1.73523	2954.3754	1.73590	2963.4414
$\frac{5}{16}$	1.73461	2945.8887	1.73527	2954.9417	1.73594	2964.0085
$\frac{3}{8}$	1.73465	2946.4541	1.73532	2955.5079	1.73598	2964.5756
$\frac{7}{16}$	1.73469	2947.0196	1.73536	2956.0742	1.73602	2965.1428
$\frac{1}{2}$	1.73473	2947.5851	1.73540	2956.6406	1.73606	2965.7101
$\frac{9}{16}$	1.73477	2948.1506	1.73544	2957.2071	1.73611	2966.2774
$\frac{5}{8}$	1.73482	2948.7163	1.73548	2957.7735	1.73615	2966.8447
$\frac{11}{16}$	1.73486	2949.2819	1.73552	2958.3401	1.73619	2967.4121
$\frac{3}{4}$	1.73490	2949.8477	1.73557	2958.9067	1.73623	2967.9796
$\frac{13}{16}$	1.73494	2950.4134	1.73561	2959.4733	1.73627	2968.5471
$\frac{7}{8}$	1.73498	2950.9793	1.73565	2960.0400	1.73631	2969.1147
$\frac{15}{16}$	1.73502	2951.5452	1.73569	2960.6068	1.73636	2969.6823

# 54'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.73640	2970.2500	1.73706	2979.3403	1.73772	2988.4444
1/16	1.73644	2970.8177	1.73710	2979.9089	1.73776	2989.0139
1/8	1.73648	2971.3855	1.73714	2980.4775	1.73781	2989.5834
3/16	1.73652	2971.9534	1.73718	2981.0463	1.73785	2990.1530
1/4	1.73656	2972.5213	1.73723	2981.6150	1.73789	2990.7227
5/16	1.73660	2973.0892	1.73727	2982.1838	1.73793	2991.2923
3/8	1.73665	2973.6572	1.73731	2982.7527	1.73797	2991.8621
7/16	1.73669	2974.2253	1.73735	2983.3216	1.73801	2992.4319
1/2	1.73673	2974.7934	1.73739	2983.8906	1.73805	2993.0017
9/16	1.73677	2975.3616	1.73743	2984.4597	1.73809	2993.5716
5/8	1.73681	2975.9298	1.73747	2985.0288	1.73814	2994.1416
11/16	1.73685	2976.4981	1.73752	2985.5979	1.73818	2994.7116
3/4	1.73689	2977.0664	1.73756	2986.1671	1.73822	2995.2817
13/16	1.73694	2977.6348	1.73760	2986.7364	1.73826	2995.8518
7/8	1.73698	2978.2032	1.73764	2987.3057	1.73830	2996.4220
15/16	1.73702	2978.7717	1.73768	2987.8750	1.73834	2996.9922
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.73838	2997.5625	1.73904	3006.6944	1.73970	3015.8403
1/16	1.73843	2998.1328	1.73909	3007.2657	1.73975	3016.4124
1/8	1.73847	2998.7032	1.73913	3007.8369	1.73979	3016.9845
3/16	1.73851	2999.2737	1.73917	3008.4082	1.73983	3017.5567
1/4	1.73855	2999.8442	1.73921	3008.9796	1.73987	3018.1289
5/16	1.73859	3000.4147	1.73925	3009.5510	1.73991	3018.7012
3/8	1.73863	3000.9854	1.73929	3010.1225	1.73995	3019.2735
7/16	1.73867	3001.5560	1.73933	3010.6940	1.73999	3019.8459
1/2	1.73871	3002.1267	1.73937	3011.2656	1.74003	3020.4184
9/16	1.73876	3002.6975	1.73942	3011.8373	1.74007	3020.9909
5/8	1.73880	3003.2683	1.73946	3012.4090	1.74012	3021.5635
11/16	1.73884	3003.8392	1.73950	3012.9807	1.74016	3022.1361
3/4	1.73888	3004.4102	1.73954	3013.5525	1.74020	3022.7088
13/16	1.73892	3004.9811	1.73958	3014.1244	1.74024	3023.2815
7/8	1.73896	3005.5522	1.73962	3014.6963	1.74028	3023.8543
15/16	1.73900	3006.1233	1.73966	3015.2683	1.74032	3024.4271

# 55'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.74036	3025.0000	1.74102	3034.1736	1.74168	3043.3611
1/16	1.74040	3025.5729	1.74106	3034.7474	1.74172	3043.9358
1/8	1.74044	3026.1459	1.74110	3035.3213	1.74176	3044.5105
3/16	1.74049	3026.7190	1.74114	3035.8952	1.74180	3045.0853
1/4	1.74053	3027.2921	1.74118	3036.4692	1.74184	3045.6602
5/16	1.74057	3027.8653	1.74123	3037.0432	1.74188	3046.2351
3/8	1.74061	3028.4385	1.74127	3037.6173	1.74192	3046.8100
7/16	1.74065	3029.0117	1.74131	3038.1914	1.74196	3047.3850
1/2	1.74069	3029.5851	1.74135	3038.7656	1.74200	3047.9601
9/16	1.74073	3030.1584	1.74139	3039.3399	1.74205	3048.5352
5/8	1.74077	3030.7319	1.74143	3039.9142	1.74209	3049.1104
11/16	1.74081	3031.3054	1.74147	3040.4885	1.74213	3049.6856
3/4	1.74086	3031.8789	1.74151	3041.0629	1.74217	3050.2609
13/16	1.74090	3032.4525	1.74155	3041.6374	1.74221	3050.8362
7/8	1.74094	3033.0262	1.74159	3042.2119	1.74225	3051.4116
15/16	1.74098	3033.5999	1.74164	3042.7865	1.74229	3051.9870
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.74233	3052.5625	1.74299	3061.7778	1.74364	3071.0069
1/16	1.74237	3053.1380	1.74303	3062.3542	1.74368	3071.5842
1/8	1.74241	3053.7137	1.74307	3062.9307	1.74372	3072.1616
3/16	1.74246	3054.2893	1.74311	3063.5072	1.74376	3072.7390
1/4	1.74250	3054.8650	1.74315	3064.0838	1.74380	3073.3164
5/16	1.74254	3055.4408	1.74319	3064.6604	1.74384	3073.8939
3/8	1.74258	3056.0166	1.74323	3065.2371	1.74389	3074.4715
7/16	1.74262	3056.5925	1.74327	3065.8138	1.74393	3075.0491
1/2	1.74266	3057.1684	1.74331	3066.3906	1.74397	3075.6267
9/16	1.74270	3057.7444	1.74335	3066.9675	1.74401	3076.2045
5/8	1.74274	3058.3204	1.74340	3067.5444	1.74405	3076.7822
11/16	1.74278	3058.8965	1.74344	3068.1213	1.74409	3077.3601
3/4	1.74282	3059.4727	1.74348	3068.6984	1.74413	3077.9379
13/16	1.74286	3060.0489	1.74352	3069.2754	1.74417	3078.5159
7/8	1.74291	3060.6251	1.74356	3069.8525	1.74421	3079.0939
15/16	1.74295	3061.2014	1.74360	3070.4297	1.74425	3079.6719

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.74429	3080.2500	1.74494	3089.5069	1.74560	3098.7778
$\frac{1}{16}$	1.74433	3080.8282	1.74499	3090.0860	1.74564	3099.3577
$\frac{1}{8}$	1.74437	3081.4064	1.74503	3090.6650	1.74568	3099.9376
$\frac{3}{16}$	1.74442	3081.9846	1.74507	3091.2442	1.74572	3100.5176
$\frac{1}{4}$	1.74446	3082.5629	1.74511	3091.8234	1.74576	3101.0977
$\frac{5}{16}$	1.74450	3083.1413	1.74515	3092.4026	1.74580	3101.6778
$\frac{3}{8}$	1.74454	3083.7197	1.74519	3092.9819	1.74584	3102.2579
$\frac{7}{16}$	1.74458	3084.2982	1.74523	3093.5612	1.74588	3102.8381
$\frac{1}{2}$	1.74462	3084.8767	1.74527	3094.1406	1.74592	3103.4184
$\frac{9}{16}$	1.74466	3085.4553	1.74531	3094.7201	1.74596	3103.9987
$\frac{5}{8}$	1.74470	3086.0340	1.74535	3095.2996	1.74600	3104.5791
$1\frac{1}{16}$	1.74474	3086.6127	1.74539	3095.8792	1.74604	3105.1595
$\frac{3}{4}$	1.74478	3087.1914	1.74543	3096.4588	1.74608	3105.7400
$1\frac{3}{16}$	1.74482	3087.7702	1.74547	3097.0384	1.74612	3106.3206
$\frac{7}{8}$	1.74486	3088.3491	1.74551	3097.6182	1.74616	3106.9012
$1\frac{5}{16}$	1.74490	3088.9280	1.74555	3098.1979	1.74620	3107.4818
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.74624	3108.0625	1.74689	3117.3611	1.74754	3126.6736
$\frac{1}{16}$	1.74629	3108.6433	1.74693	3117.9427	1.74758	3127.2561
$\frac{1}{8}$	1.74633	3109.2241	1.74697	3118.5244	1.74762	3127.8387
$\frac{3}{16}$	1.74637	3109.8049	1.74702	3119.1061	1.74766	3128.4213
$\frac{1}{4}$	1.74641	3110.3859	1.74706	3119.6879	1.74770	3129.0039
$\frac{5}{16}$	1.74645	3110.9668	1.74710	3120.2698	1.74774	3129.5866
$\frac{3}{8}$	1.74649	3111.5479	1.74714	3120.8517	1.74778	3130.1694
$\frac{7}{16}$	1.74653	3112.1289	1.74718	3121.4336	1.74782	3130.7522
$\frac{1}{2}$	1.74657	3112.7101	1.74722	3122.0156	1.74786	3131.3351
$\frac{9}{16}$	1.74661	3113.2913	1.74726	3122.5977	1.74791	3131.9180
$\frac{5}{8}$	1.74665	3113.8725	1.74730	3123.1798	1.74795	3132.5010
$1\frac{1}{16}$	1.74669	3114.4538	1.74734	3123.7620	1.74799	3133.0840
$\frac{3}{4}$	1.74673	3115.0352	1.74738	3124.3442	1.74803	3133.6671
$1\frac{3}{16}$	1.74677	3115.6166	1.74742	3124.9265	1.74807	3134.2502
$\frac{7}{8}$	1.74681	3116.1980	1.74746	3125.5088	1.74811	3134.8334
$1\frac{5}{16}$	1.74685	3116.7795	1.74750	3126.0912	1.74815	3135.4167



# 51'

Fractions of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70757	2601.0000	1.70828	2609.5069	1.70899	2618.0278
1/16	1.70761	2601.5313	1.70832	2610.0391	1.70903	2618.5608
1/8	1.70766	2602.0626	1.70837	2610.5713	1.70908	2619.0939
3/16	1.70770	2602.5940	1.70841	2611.1035	1.70912	2619.6270
1/4	1.70775	2603.1254	1.70846	2611.6359	1.70916	2620.1602
5/16	1.70779	2603.6569	1.70850	2612.1682	1.70921	2620.6934
3/8	1.70784	2604.1885	1.70854	2612.7006	1.70925	2621.2267
7/16	1.70788	2604.7201	1.70859	2613.2331	1.70930	2621.7600
1/2	1.70792	2605.2517	1.70863	2613.7656	1.70934	2622.2934
9/16	1.70797	2605.7834	1.70868	2614.2982	1.70938	2622.8269
5/8	1.70801	2606.3152	1.70872	2614.8308	1.70943	2623.3604
11/16	1.70806	2606.8470	1.70877	2615.3635	1.70947	2623.8939
3/4	1.70810	2607.3789	1.70881	2615.8963	1.70952	2624.4275
13/16	1.70815	2607.9108	1.70885	2616.4291	1.70956	2624.9612
7/8	1.70819	2608.4428	1.70890	2616.9619	1.70961	2625.4949
15/16	1.70823	2608.9749	1.70894	2617.4948	1.70965	2626.0287
Fractions of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.70969	2626.5625	1.71040	2635.1111	1.71110	2643.6736
1/16	1.70974	2627.0964	1.71044	2635.6459	1.71115	2644.2092
1/8	1.70978	2627.6303	1.71049	2636.1807	1.71119	2644.7449
3/16	1.70983	2628.1643	1.71053	2636.7155	1.71124	2645.2806
1/4	1.70987	2628.6984	1.71058	2637.2504	1.71128	2645.8164
5/16	1.70991	2629.2324	1.71062	2637.7854	1.71132	2646.3522
3/8	1.70996	2629.7666	1.71066	2638.3204	1.71137	2646.8881
7/16	1.71000	2630.3008	1.71071	2638.8555	1.71141	2647.4241
1/2	1.71005	2630.8351	1.71075	2639.3906	1.71146	2647.9601
9/16	1.71009	2631.3694	1.71080	2639.9258	1.71150	2648.4961
5/8	1.71014	2631.9038	1.71084	2640.4610	1.71154	2649.0322
11/16	1.71018	2632.4382	1.71088	2640.9963	1.71159	2649.5684
3/4	1.71022	2632.9727	1.71093	2641.5317	1.71163	2650.1046
13/16	1.71027	2633.5072	1.71097	2642.0671	1.71168	2650.6409
7/8	1.71031	2634.0418	1.71102	2642.6025	1.71172	2651.1772
15/16	1.71036	2634.5764	1.71106	2643.1380	1.71176	2651.7136

# 51'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71181	2652.2500	1.71251	2660.8403	1.71321	2669.4444
$\frac{1}{16}$	1.71185	2652.7865	1.71255	2661.3776	1.71325	2669.9827
$\frac{1}{8}$	1.71190	2653.3230	1.71260	2661.9150	1.71330	2670.5209
$\frac{3}{16}$	1.71194	2653.8596	1.71264	2662.4525	1.71334	2671.0593
$\frac{1}{4}$	1.71198	2654.3963	1.71268	2662.9900	1.71339	2671.5977
$\frac{5}{16}$	1.71203	2654.9330	1.71273	2663.5276	1.71343	2672.1361
$\frac{3}{8}$	1.71207	2655.4697	1.71277	2664.0652	1.71347	2672.6746
$\frac{7}{16}$	1.71211	2656.0065	1.71282	2664.6029	1.71352	2673.2131
$\frac{1}{2}$	1.71216	2656.5434	1.71286	2665.1406	1.71356	2673.7517
$\frac{9}{16}$	1.71220	2657.0803	1.71290	2665.6784	1.71360	2674.2904
$\frac{5}{8}$	1.71225	2657.6173	1.71295	2666.2163	1.71365	2674.8291
$\frac{11}{16}$	1.71229	2658.1543	1.71299	2666.7542	1.71369	2675.3679
$\frac{3}{4}$	1.71233	2658.6914	1.71304	2667.2921	1.71374	2675.9067
$\frac{13}{16}$	1.71238	2659.2285	1.71308	2667.8301	1.71378	2676.4456
$\frac{7}{8}$	1.71242	2659.7657	1.71312	2668.3682	1.71382	2676.9845
$\frac{15}{16}$	1.71247	2660.3030	1.71317	2668.9063	1.71387	2677.5235

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71391	2678.0625	1.71461	2686.6944	1.71531	2695.3403
$\frac{1}{16}$	1.71395	2678.6016	1.71465	2687.2344	1.71535	2695.8811
$\frac{1}{8}$	1.71400	2679.1407	1.71470	2687.7744	1.71539	2696.4220
$\frac{3}{16}$	1.71404	2679.6799	1.71474	2688.3145	1.71544	2696.9629
$\frac{1}{4}$	1.71409	2680.2192	1.71478	2688.8546	1.71548	2697.5039
$\frac{5}{16}$	1.71413	2680.7585	1.71483	2689.3948	1.71552	2698.0449
$\frac{3}{8}$	1.71417	2681.2979	1.71487	2689.9350	1.71557	2698.5860
$\frac{7}{16}$	1.71422	2681.8373	1.71491	2690.4753	1.71561	2699.1272
$\frac{1}{2}$	1.71426	2682.3767	1.71496	2691.0156	1.71566	2699.6684
$\frac{9}{16}$	1.71430	2682.9163	1.71500	2691.5560	1.71570	2700.2097
$\frac{5}{8}$	1.71435	2683.4558	1.71505	2692.0965	1.71574	2700.7510
$\frac{11}{16}$	1.71439	2683.9955	1.71509	2692.6370	1.71579	2701.2923
$\frac{3}{4}$	1.71443	2684.5352	1.71513	2693.1775	1.71583	2701.8338
$\frac{13}{16}$	1.71448	2685.0749	1.71518	2693.7181	1.71587	2702.3752
$\frac{7}{8}$	1.71452	2685.6147	1.71522	2694.2588	1.71592	2702.9168
$\frac{15}{16}$	1.71457	2686.1545	1.71526	2694.7995	1.71596	2703.4584

# 52'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71600	2704.0000	1.71670	2712.6736	1.71739	2721.3611
1/16	1.71605	2704.5417	1.71674	2713.2162	1.71744	2721.9045
1/8	1.71609	2705.0834	1.71679	2713.7588	1.71748	2722.4480
3/16	1.71613	2705.6252	1.71683	2714.3015	1.71752	2722.9916
1/4	1.71618	2706.1671	1.71687	2714.8442	1.71757	2723.5352
5/16	1.71622	2706.7090	1.71692	2715.3870	1.71761	2724.0788
3/8	1.71626	2707.2510	1.71696	2715.9298	1.71765	2724.6225
7/16	1.71631	2707.7930	1.71700	2716.4727	1.71770	2725.1663
1/2	1.71635	2708.3351	1.71705	2717.0156	1.71774	2725.7101
9/16	1.71639	2708.8772	1.71709	2717.5586	1.71778	2726.2539
5/8	1.71644	2709.4194	1.71713	2718.1017	1.71783	2726.7979
11/16	1.71648	2709.9616	1.71718	2718.6448	1.71787	2727.3418
3/4	1.71653	2710.5039	1.71722	2719.1879	1.71791	2727.8859
13/16	1.71657	2711.0463	1.71726	2719.7311	1.71796	2728.4299
7/8	1.71661	2711.5887	1.71731	2720.2744	1.71800	2728.9741
15/16	1.71666	2712.1311	1.71735	2720.8177	1.71804	2729.5183

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.71809	2730.0625	1.71878	2738.7778	1.71947	2747.5069
1/16	1.71813	2730.6068	1.71882	2739.3229	1.71951	2748.0530
1/8	1.71817	2731.1512	1.71886	2739.8682	1.71956	2748.5991
3/16	1.71822	2731.6956	1.71891	2740.4134	1.71960	2749.1452
1/4	1.71826	2732.2400	1.71895	2740.9588	1.71964	2749.6914
5/16	1.71830	2732.7845	1.71899	2741.5042	1.71969	2750.2377
3/8	1.71835	2733.3291	1.71904	2742.0496	1.71973	2750.7840
7/16	1.71839	2733.8737	1.71908	2742.5951	1.71977	2751.3303
1/2	1.71843	2734.4184	1.71912	2743.1406	1.71981	2751.8767
9/16	1.71848	2734.9631	1.71917	2743.6862	1.71986	2752.4232
5/8	1.71852	2735.5079	1.71921	2744.2319	1.71990	2752.9697
11/16	1.71856	2736.0528	1.71925	2744.7776	1.71994	2753.5163
3/4	1.71861	2736.5977	1.71930	2745.3234	1.71999	2754.0629
13/16	1.71865	2737.1426	1.71934	2745.8692	1.72003	2754.6096
7/8	1.71869	2737.6876	1.71938	2746.4150	1.72007	2755.1564
15/16	1.71874	2738.2327	1.71943	2746.9610	1.72012	2755.7032

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72016	2756.2500	1.72085	2765.0069	1.72154	2773.7778
$\frac{1}{16}$	1.72020	2756.7969	1.72089	2765.5547	1.72158	2774.3264
$\frac{1}{8}$	1.72025	2757.3439	1.72093	2766.1025	1.72162	2774.8751
$\frac{3}{16}$	1.72029	2757.8909	1.72098	2766.6504	1.72166	2775.4239
$\frac{1}{4}$	1.72033	2758.4379	1.72102	2767.1984	1.72171	2775.9727
$\frac{5}{16}$	1.72037	2758.9851	1.72106	2767.7463	1.72175	2776.5215
$\frac{3}{8}$	1.72042	2759.5322	1.72111	2768.2944	1.72179	2777.0704
$\frac{7}{16}$	1.72046	2760.0795	1.72115	2768.8425	1.72184	2777.6194
$\frac{1}{2}$	1.72050	2760.6267	1.72119	2769.3906	1.72188	2778.1684
$\frac{9}{16}$	1.72055	2761.1741	1.72124	2769.9388	1.72192	2778.7175
$\frac{5}{8}$	1.72059	2761.7215	1.72128	2770.4871	1.72197	2779.2666
$\frac{11}{16}$	1.72063	2762.2689	1.72132	2771.0354	1.72201	2779.8158
$\frac{3}{4}$	1.72068	2762.8164	1.72136	2771.5838	1.72205	2780.3650
$\frac{13}{16}$	1.72072	2763.3640	1.72141	2772.1322	1.72209	2780.9143
$\frac{7}{8}$	1.72076	2763.9116	1.72145	2772.6807	1.72214	2781.4637
$\frac{15}{16}$	1.72081	2764.4592	1.72149	2773.2292	1.72218	2782.0130

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.72222	2782.5625	1.72291	2791.3611	1.72359	2800.1736
$\frac{1}{16}$	1.72227	2783.1120	1.72295	2791.9115	1.72364	2800.7249
$\frac{1}{8}$	1.72231	2783.6616	1.72299	2792.4619	1.72368	2801.2762
$\frac{3}{16}$	1.72235	2784.2112	1.72304	2793.0124	1.72372	2801.8275
$\frac{1}{4}$	1.72239	2784.7609	1.72308	2793.5629	1.72376	2802.3789
$\frac{5}{16}$	1.72244	2785.3106	1.72312	2794.1135	1.72381	2802.9304
$\frac{3}{8}$	1.72248	2785.8604	1.72316	2794.6642	1.72385	2803.4819
$\frac{7}{16}$	1.72252	2786.4102	1.72321	2795.2149	1.72389	2804.0334
$\frac{1}{2}$	1.72257	2786.9601	1.72325	2795.7656	1.72393	2804.5851
$\frac{9}{16}$	1.72261	2787.5100	1.72329	2796.3164	1.72398	2805.1367
$\frac{5}{8}$	1.72265	2788.0600	1.72334	2796.8673	1.72402	2805.6885
$\frac{11}{16}$	1.72269	2788.6101	1.72338	2797.4182	1.72406	2806.2403
$\frac{3}{4}$	1.72274	2789.1602	1.72342	2797.9692	1.72411	2806.7921
$\frac{13}{16}$	1.72278	2789.7103	1.72346	2798.5202	1.72415	2807.3440
$\frac{7}{8}$	1.72282	2790.2605	1.72351	2799.0713	1.72419	2807.8959
$\frac{15}{16}$	1.72287	2790.8108	1.72355	2799.6224	1.72423	2808.4479

# 64'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.80618	4096.0000	1.80675	4106.6736	1.80731	4117.3611
1/16	1.80622	4096.6667	1.80678	4107.3412	1.80734	4118.0295
1/8	1.80625	4097.3334	1.80682	4108.0088	1.80738	4118.6980
3/16	1.80629	4098.0002	1.80685	4108.6765	1.80742	4119.3666
1/4	1.80632	4098.6671	1.80689	4109.3442	1.80745	4120.0352
5/16	1.80636	4099.3340	1.80692	4110.0120	1.80749	4120.7038
3/8	1.80639	4100.0010	1.80696	4110.6798	1.80752	4121.3725
7/16	1.80643	4100.6680	1.80699	4111.3477	1.80756	4122.0413
1/2	1.80646	4101.3351	1.80703	4112.0156	1.80759	4122.7101
9/16	1.80650	4102.0022	1.80706	4112.6836	1.80763	4123.3789
5/8	1.80653	4102.6694	1.80710	4113.3517	1.80766	4124.0479
11/16	1.80657	4103.3366	1.80713	4114.0198	1.80770	4124.7168
3/4	1.80660	4104.0039	1.80717	4114.6879	1.80773	4125.3859
13/16	1.80664	4104.6713	1.80720	4115.3561	1.80777	4126.0549
7/8	1.80667	4105.3387	1.80724	4116.0244	1.80780	4126.7241
15/16	1.80671	4106.0061	1.80727	4116.6927	1.80784	4127.3933

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.80787	4128.0625	1.80844	4138.7778	1.80900	4149.5069
1/16	1.80791	4128.7318	1.80847	4139.4479	1.80903	4150.1780
1/8	1.80794	4129.4012	1.80851	4140.1182	1.80907	4150.8491
3/16	1.80798	4130.0706	1.80854	4140.7884	1.80910	4151.5202
1/4	1.80801	4130.7400	1.80858	4141.4588	1.80914	4152.1914
5/16	1.80805	4131.4095	1.80861	4142.1292	1.80917	4152.8627
3/8	1.80808	4132.0791	1.80865	4142.7996	1.80921	4153.5340
7/16	1.80812	4132.7487	1.80868	4143.4701	1.80924	4154.2053
1/2	1.80815	4133.4184	1.80872	4144.1406	1.80928	4154.8767
9/16	1.80819	4134.0881	1.80875	4144.8112	1.80931	4155.5482
5/8	1.80823	4134.7579	1.80879	4145.4819	1.80935	4156.2197
11/16	1.80826	4135.4278	1.80882	4146.1526	1.80938	4156.8913
3/4	1.80830	4136.0977	1.80886	4146.8234	1.80942	4157.5629
13/16	1.80833	4136.7676	1.80889	4147.4942	1.80945	4158.2346
7/8	1.80837	4137.4376	1.80893	4148.1650	1.80949	4158.9064
	1.80840	4138.1077	1.80896	4148.8360	1.80952	4159.5782

# 64'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.80956	4160.2500	1.81012	4171.0069	1.81068	4181.7778
$\frac{1}{16}$	1.80959	4160.9219	1.81016	4171.6797	1.81072	4182.4514
$\frac{1}{8}$	1.80963	4161.5939	1.81019	4172.3525	1.81075	4183.1251
$\frac{3}{16}$	1.80966	4162.2659	1.81023	4173.0254	1.81079	4183.7989
$\frac{1}{4}$	1.80970	4162.9379	1.81026	4173.6984	1.81082	4184.4727
$\frac{5}{16}$	1.80974	4163.6101	1.81030	4174.3713	1.81086	4185.1465
$\frac{3}{8}$	1.80977	4164.2822	1.81033	4175.0444	1.81089	4185.8204
$\frac{7}{16}$	1.80981	4164.9545	1.81037	4175.7175	1.81093	4186.4944
$\frac{1}{2}$	1.80984	4165.6267	1.81040	4176.3906	1.81096	4187.1684
$\frac{9}{16}$	1.80988	4166.2991	1.81044	4177.0638	1.81100	4187.8425
$\frac{5}{8}$	1.80991	4166.9715	1.81047	4177.7371	1.81103	4188.5166
$\frac{11}{16}$	1.80995	4167.6439	1.81051	4178.4104	1.81107	4189.1908
$\frac{3}{4}$	1.80998	4168.3164	1.81054	4179.0838	1.81110	4189.8650
$\frac{13}{16}$	1.81002	4168.9890	1.81058	4179.7572	1.81113	4190.5393
$\frac{7}{8}$	1.81005	4169.6616	1.81061	4180.4307	1.81117	4191.2137
$\frac{15}{16}$	1.81009	4170.3342	1.81065	4181.1042	1.81120	4191.8880

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.81124	4192.5625	1.81180	4203.3611	1.81236	4214.1736
$\frac{1}{16}$	1.81127	4193.2370	1.81183	4204.0365	1.81239	4214.8499
$\frac{1}{8}$	1.81131	4193.9116	1.81187	4204.7119	1.81243	4215.5262
$\frac{3}{16}$	1.81134	4194.5862	1.81190	4205.3874	1.81246	4216.2025
$\frac{1}{4}$	1.81138	4195.2609	1.81194	4206.0629	1.81250	4216.8789
$\frac{5}{16}$	1.81141	4195.9356	1.81197	4206.7385	1.81253	4217.5554
$\frac{3}{8}$	1.81145	4196.6104	1.81201	4207.4142	1.81257	4218.2319
$\frac{7}{16}$	1.81148	4197.2852	1.81204	4208.0899	1.81260	4218.9084
$\frac{1}{2}$	1.81152	4197.9601	1.81208	4208.7656	1.81263	4219.5851
$\frac{9}{16}$	1.81155	4198.6350	1.81211	4209.4414	1.81267	4220.2617
$\frac{5}{8}$	1.81159	4199.3100	1.81215	4210.1173	1.81270	4220.9385
$\frac{11}{16}$	1.81162	4199.9851	1.81218	4210.7932	1.81274	4221.6153
$\frac{3}{4}$	1.81166	4200.6602	1.81222	4211.4692	1.81277	4222.2921
$\frac{13}{16}$	1.81169	4201.3353	1.81225	4212.1452	1.81281	4222.9690
$\frac{7}{8}$	1.81173	4202.0105	1.81229	4212.8213	1.81284	4223.6459
$\frac{15}{16}$	1.81176	4202.6858	1.81232	4213.4974	1.81288	4224.3229

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.81291	4225.0000	1.81347	4235.8403	1.81403	4246.6944
$\frac{1}{16}$	1.81295	4225.6771	1.81350	4236.5183	1.81406	4247.3733
$\frac{1}{8}$	1.81298	4226.3543	1.81354	4237.1963	1.81409	4248.0522
$\frac{3}{16}$	1.81302	4227.0315	1.81357	4237.8744	1.81413	4248.7311
$\frac{1}{4}$	1.81305	4227.7088	1.81361	4238.5525	1.81416	4249.4102
$\frac{5}{16}$	1.81309	4228.3861	1.81364	4239.2307	1.81420	4250.0892
$\frac{3}{8}$	1.81312	4229.0635	1.81368	4239.9090	1.81423	4250.7683
$\frac{7}{16}$	1.81316	4229.7409	1.81371	4240.5873	1.81427	4251.4475
$\frac{1}{2}$	1.81319	4230.4184	1.81375	4241.2656	1.81430	4252.1267
$\frac{9}{16}$	1.81323	4231.0959	1.81378	4241.9440	1.81434	4252.8060
$\frac{5}{8}$	1.81326	4231.7735	1.81382	4242.6225	1.81437	4253.4854
$\frac{11}{16}$	1.81330	4232.4512	1.81385	4243.3010	1.81441	4254.1647
$\frac{3}{4}$	1.81333	4233.1289	1.81389	4243.9796	1.81444	4254.8442
$\frac{13}{16}$	1.81337	4233.8067	1.81392	4244.6582	1.81448	4255.5237
$\frac{7}{8}$	1.81340	4234.4845	1.81396	4245.3369	1.81451	4256.2032
$\frac{15}{16}$	1.81344	4235.1624	1.81399	4246.0157	1.81455	4256.8828
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.81458	4257.5625	1.81513	4268.4444	1.81569	4279.3403
$\frac{1}{16}$	1.81462	4258.2422	1.81517	4269.1250	1.81572	4280.0217
$\frac{1}{8}$	1.81465	4258.9220	1.81520	4269.8057	1.81576	4280.7032
$\frac{3}{16}$	1.81468	4259.6018	1.81524	4270.4864	1.81579	4281.3848
$\frac{1}{4}$	1.81472	4260.2817	1.81527	4271.1671	1.81583	4282.0664
$\frac{5}{16}$	1.81475	4260.9616	1.81531	4271.8479	1.81586	4282.7481
$\frac{3}{8}$	1.81479	4261.6416	1.81534	4272.5288	1.81590	4283.4298
$\frac{7}{16}$	1.81482	4262.3216	1.81538	4273.2097	1.81593	4284.1116
$\frac{1}{2}$	1.81486	4263.0017	1.81541	4273.8906	1.81596	4284.7934
$\frac{9}{16}$	1.81489	4263.6819	1.81545	4274.5716	1.81600	4285.4753
$\frac{5}{8}$	1.81493	4264.3621	1.81548	4275.2527	1.81603	4286.1572
$\frac{11}{16}$	1.81496	4265.0423	1.81552	4275.9338	1.81607	4286.8392
$\frac{3}{4}$	1.81500	4265.7227	1.81555	4276.6150	1.81610	4287.5213
$\frac{13}{16}$	1.81503	4266.4030	1.81558	4277.2963	1.81614	4288.2034
$\frac{7}{8}$	1.81507	4267.0834	1.81562	4277.9775	1.81617	4288.8855
$\frac{15}{16}$	1.81510	4267.7639	1.81565	4278.6589	1.81621	4289.5677

# 65'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.81624	4290.2500	1.81679	4301.1736	1.81734	4312.1111
$\frac{1}{16}$	1.81628	4290.9323	1.81683	4301.8568	1.81738	4312.7952
$\frac{1}{8}$	1.81631	4291.6147	1.81686	4302.5400	1.81741	4313.4793
$\frac{3}{16}$	1.81634	4292.2971	1.81690	4303.2233	1.81745	4314.1634
$\frac{1}{4}$	1.81638	4292.9796	1.81693	4303.9067	1.81748	4314.8477
$\frac{5}{16}$	1.81641	4293.6621	1.81697	4304.5901	1.81752	4315.5319
$\frac{3}{8}$	1.81645	4294.3447	1.81700	4305.2735	1.81755	4316.2163
$\frac{7}{16}$	1.81648	4295.0274	1.81703	4305.9571	1.81759	4316.9006
$\frac{1}{2}$	1.81652	4295.7101	1.81707	4306.6406	1.81762	4317.5851
$\frac{9}{16}$	1.81655	4296.3928	1.81710	4307.3242	1.81765	4318.2696
$\frac{5}{8}$	1.81659	4297.0756	1.81714	4308.0079	1.81769	4318.9541
$\frac{11}{16}$	1.81662	4297.7585	1.81717	4308.6917	1.81772	4319.6387
$\frac{3}{4}$	1.81666	4298.4414	1.81721	4309.3754	1.81776	4320.3234
$\frac{13}{16}$	1.81669	4299.1244	1.81724	4310.0593	1.81779	4321.0081
$\frac{7}{8}$	1.81672	4299.8074	1.81728	4310.7432	1.81783	4321.6928
$\frac{15}{16}$	1.81676	4300.4905	1.81731	4311.4271	1.81786	4322.3776

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.81790	4323.0625	1.81845	4334.0278	1.81900	4345.0069
$\frac{1}{16}$	1.81793	4323.7474	1.81848	4334.7136	1.81903	4345.6936
$\frac{1}{8}$	1.81796	4324.4324	1.81851	4335.3994	1.81906	4346.3803
$\frac{3}{16}$	1.81800	4325.1174	1.81855	4336.0853	1.81910	4347.0671
$\frac{1}{4}$	1.81803	4325.8025	1.81858	4336.7713	1.81913	4347.7539
$\frac{5}{16}$	1.81807	4326.4877	1.81862	4337.4573	1.81917	4348.4408
$\frac{3}{8}$	1.81810	4327.1729	1.81865	4338.1433	1.81920	4349.1277
$\frac{7}{16}$	1.81814	4327.8581	1.81869	4338.8295	1.81924	4349.8147
$\frac{1}{2}$	1.81817	4328.5434	1.81872	4339.5156	1.81927	4350.5017
$\frac{9}{16}$	1.81821	4329.2288	1.81875	4340.2019	1.81930	4351.1888
$\frac{5}{8}$	1.81824	4329.9142	1.81879	4340.8881	1.81934	4351.8760
$\frac{11}{16}$	1.81827	4330.5996	1.81882	4341.5745	1.81937	4352.5632
$\frac{3}{4}$	1.81831	4331.2852	1.81886	4342.2609	1.81941	4353.2504
$\frac{13}{16}$	1.81834	4331.9707	1.81889	4342.9473	1.81944	4353.9377
$\frac{7}{8}$	1.81838	4332.6564	1.81893	4343.6338	1.81948	4354.6251
$\frac{15}{16}$	1.81841	4333.3420	1.81896	4344.3203	1.81951	4355.3125



# 66'

Fraction of an inch	0'		1"		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.81954	4356.0000	1.82009	4367.0069	1.82064	4378.0278
1/16	1.81958	4356.6875	1.82013	4367.6953	1.82067	4378.7170
1/8	1.81961	4357.3751	1.82016	4368.3838	1.82071	4379.4064
3/16	1.81965	4358.0627	1.82019	4369.0723	1.82074	4380.0957
1/4	1.81968	4358.7504	1.82023	4369.7609	1.82078	4380.7852
5/16	1.81972	4359.4382	1.82026	4370.4495	1.82081	4381.4746
3/8	1.81975	4360.1260	1.82030	4371.1381	1.82084	4382.1642
7/16	1.81978	4360.8138	1.82033	4371.8269	1.82088	4382.8538
1/2	1.81982	4361.5017	1.82037	4372.5156	1.82091	4383.5434
9/16	1.81985	4362.1897	1.82040	4373.2045	1.82095	4384.2331
5/8	1.81989	4362.8777	1.82043	4373.8933	1.82098	4384.9229
11/16	1.81992	4363.5658	1.82047	4374.5823	1.82102	4385.6127
3/4	1.81996	4364.2539	1.82050	4375.2713	1.82105	4386.3025
13/16	1.81999	4364.9421	1.82054	4375.9603	1.82108	4386.9924
7/8	1.82002	4365.6303	1.82057	4376.6494	1.82112	4387.6824
15/16	1.82006	4366.3186	1.82061	4377.3386	1.82115	4388.3724

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.82119	4389.0625	1.82173	4400.1111	1.82228	4411.1736
1/16	1.82122	4389.7526	1.82177	4400.8021	1.82231	4411.8655
1/8	1.82125	4390.4428	1.82180	4401.4932	1.82235	4412.5574
3/16	1.82129	4391.1331	1.82183	4402.1843	1.82238	4413.2494
1/4	1.82132	4391.8234	1.82187	4402.8754	1.82241	4413.9414
5/16	1.82136	4392.5137	1.82190	4403.5667	1.82245	4414.6335
3/8	1.82139	4393.2041	1.82194	4404.2579	1.82248	4415.3256
7/16	1.82142	4393.8946	1.82197	4404.9492	1.82252	4416.0178
1/2	1.82146	4394.5851	1.82200	4405.6406	1.82255	4416.7101
9/16	1.82149	4395.2756	1.82204	4406.3321	1.82258	4417.4024
5/8	1.82153	4395.9663	1.82207	4407.0235	1.82262	4418.0947
11/16	1.82156	4396.6569	1.82211	4407.7151	1.82265	4418.7871
3/4	1.82160	4397.3477	1.82214	4408.4067	1.82269	4419.4796
13/16	1.82163	4398.0384	1.82217	4409.0983	1.82272	4420.1721
7/8	1.82166	4398.7293	1.82221	4409.7900	1.82275	4420.8647
15/16	1.82170	4399.4202	1.82224	4410.4818	1.82279	4421.5573

# 66'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.82282	4422.2500	1.82337	4433.3403	1.82391	4444.4444
1/16	1.82286	4422.9427	1.82340	4434.0339	1.82394	4445.1389
1/8	1.82289	4423.6355	1.82343	4434.7275	1.82398	4445.8334
3/16	1.82292	4424.3284	1.82347	4435.4213	1.82401	4446.5280
1/4	1.82296	4425.0213	1.82350	4436.1150	1.82404	4447.2227
5/16	1.82299	4425.7142	1.82354	4436.8088	1.82408	4447.9173
3/8	1.82303	4426.4072	1.82357	4437.5027	1.82411	4448.6121
7/16	1.82306	4427.1003	1.82360	4438.1966	1.82415	4449.3069
1/2	1.82309	4427.7934	1.82364	4438.8906	1.82418	4450.0017
9/16	1.82313	4428.4866	1.82367	4439.5847	1.82421	4450.6966
5/8	1.82316	4429.1798	1.82371	4440.2788	1.82425	4451.3916
11/16	1.82320	4429.8731	1.82374	4440.9729	1.82428	4452.0866
3/4	1.82323	4430.5664	1.82377	4441.6671	1.82432	4452.7817
13/16	1.82326	4431.2598	1.82381	4442.3614	1.82435	4453.4768
7/8	1.82330	4431.9532	1.82384	4443.0557	1.82438	4454.1720
15/16	1.82333	4432.6467	1.82387	4443.7500	1.82442	4454.8672

Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.82445	4455.5625	1.82499	4466.6044	1.82553	4477.8403
1/16	1.82449	4456.2578	1.82503	4467.3907	1.82557	4478.5374
1/8	1.82452	4456.9532	1.82506	4468.0869	1.82560	4479.2345
3/16	1.82455	4457.6487	1.82509	4468.7832	1.82564	4479.9317
1/4	1.82459	4458.3442	1.82513	4469.4796	1.82567	4480.6289
5/16	1.82462	4459.0397	1.82516	4470.1760	1.82570	4481.3262
3/8	1.82465	4459.7354	1.82520	4470.8725	1.82574	4482.0235
7/16	1.82469	4460.4310	1.82523	4471.5690	1.82577	4482.7209
1/2	1.82472	4461.1267	1.82526	4472.2656	1.82580	4483.4184
9/16	1.82476	4461.8225	1.82530	4472.9623	1.82584	4484.1159
5/8	1.82479	4462.5183	1.82533	4473.6590	1.82587	4484.8135
11/16	1.82482	4463.2142	1.82537	4474.3557	1.82591	4485.5111
3/4	1.82486	4463.9102	1.82540	4475.0525	1.82594	4486.2088
13/16	1.82489	4464.6061	1.82543	4475.7494	1.82597	4486.9065
7/8	1.82493	4465.3022	1.82547	4476.4463	1.82601	4487.6043
15/16	1.82496	4465.9983	1.82550	4477.1433	1.82604	4488.3021

# 67'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.82607	4489.0000	1.82661	4500.1736	1.82715	4511.3611
1/16	1.82611	4489.6979	1.82665	4500.8724	1.82719	4512.0608
1/8	1.82614	4490.3959	1.82668	4501.5713	1.82722	4512.7605
3/16	1.82618	4491.0940	1.82672	4502.2702	1.82725	4513.4603
1/4	1.82621	4491.7921	1.82675	4502.9692	1.82729	4514.1602
5/16	1.82624	4492.4903	1.82678	4503.6682	1.82732	4514.8601
3/8	1.82628	4493.1885	1.82682	4504.3673	1.82736	4515.5600
7/16	1.82631	4493.8867	1.82685	4505.0664	1.82739	4516.2600
1/2	1.82634	4494.5851	1.82688	4505.7656	1.82742	4516.9601
9/16	1.82638	4495.2834	1.82692	4506.4649	1.82746	4517.6602
5/8	1.82641	4495.9819	1.82695	4507.1642	1.82749	4518.3604
11/16	1.82645	4496.6804	1.82699	4507.8635	1.82752	4519.0606
3/4	1.82648	4497.3789	1.82702	4508.5629	1.82756	4519.7609
13/16	1.82651	4498.0775	1.82705	4509.2624	1.82759	4520.4612
7/8	1.82655	4498.7762	1.82709	4509.9619	1.82763	4521.1616
15/16	1.82658	4499.4749	1.82712	4510.6615	1.82766	4521.8620

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.82769	4522.5625	1.82823	4533.7778	1.82877	4545.0069
1/16	1.82773	4523.2630	1.82826	4534.4792	1.82880	4545.7092
1/8	1.82776	4523.9637	1.82830	4535.1807	1.82883	4546.4116
3/16	1.82779	4524.6643	1.82833	4535.8822	1.82887	4547.1140
1/4	1.82783	4525.3650	1.82836	4536.5838	1.82890	4547.8164
5/16	1.82786	4526.0658	1.82840	4537.2854	1.82894	4548.5189
3/8	1.82789	4526.7666	1.82843	4537.9871	1.82897	4549.2215
7/16	1.82793	4527.4675	1.82847	4538.6888	1.82900	4549.9241
1/2	1.82796	4528.1684	1.82850	4539.3906	1.82904	4550.6267
9/16	1.82799	4528.8694	1.82853	4540.0925	1.82907	4551.3295
5/8	1.82803	4529.5704	1.82857	4540.7944	1.82910	4552.0322
11/16	1.82806	4530.2715	1.82860	4541.4963	1.82914	4552.7351
3/4	1.82810	4530.9727	1.82863	4542.1984	1.82917	4553.4379
13/16	1.82813	4531.6739	1.82867	4542.9004	1.82920	4554.1409
7/8	1.82816	4532.3751	1.82870	4543.6025	1.82924	4554.8439
15/16	1.82820	4533.0764	1.82873	4544.3047	1.82927	4555.5469

67'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.82930	4556.2500	1.82984	4567.5069	1.83037	4578.7778
1/16	1.82934	4556.9532	1.82987	4568.2110	1.83041	4579.4827
1/8	1.82937	4557.6564	1.82991	4568.9150	1.83044	4580.1876
3/16	1.82940	4558.3596	1.82994	4569.6192	1.83048	4580.8926
1/4	1.82944	4559.0629	1.82997	4570.3234	1.83051	4581.5977
5/16	1.82947	4559.7663	1.83001	4571.0276	1.83054	4582.3028
3/8	1.82950	4560.4697	1.83004	4571.7319	1.83058	4583.0079
7/16	1.82954	4561.1732	1.83007	4572.4362	1.83061	4583.7131
1/2	1.82957	4561.8767	1.83011	4573.1406	1.83064	4584.4184
9/16	1.82961	4562.5803	1.83014	4573.8451	1.83068	4585.1237
5/8	1.82964	4563.2840	1.83017	4574.5496	1.83071	4585.8291
11/16	1.82967	4563.9877	1.83021	4575.2542	1.83074	4586.5345
3/4	1.82971	4564.6914	1.83024	4575.9588	1.83078	4587.2400
13/16	1.82974	4565.3952	1.83027	4576.6634	1.83081	4587.9456
7/8	1.82977	4566.0991	1.83031	4577.3682	1.83084	4588.6512
15/16	1.82981	4566.8030	1.83034	4578.0729	1.83088	4589.3568
Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.83091	4590.0625	1.83144	4601.3611	1.83198	4612.6736
1/16	1.83094	4590.7683	1.83148	4602.0677	1.83201	4613.3811
1/8	1.83098	4591.4741	1.83151	4602.7744	1.83204	4614.0887
3/16	1.83101	4592.1799	1.83154	4603.4811	1.83208	4614.7963
1/4	1.83104	4592.8859	1.83158	4604.1879	1.83211	4615.5039
5/16	1.83108	4593.5918	1.83161	4604.8948	1.83214	4616.2116
3/8	1.83111	4594.2979	1.83164	4605.6017	1.83218	4616.9194
7/16	1.83114	4595.0039	1.83168	4606.3086	1.83221	4617.6272
1/2	1.83118	4595.7101	1.83171	4607.0156	1.83224	4618.3351
9/16	1.83121	4596.4163	1.83174	4607.7227	1.83228	4619.0430
5/8	1.83124	4597.1225	1.83178	4608.4298	1.83231	4619.7510
11/16	1.83128	4597.8288	1.83181	4609.1370	1.83234	4620.4590
3/4	1.83131	4598.5352	1.83184	4609.8442	1.83238	4621.1671
13/16	1.83134	4599.2416	1.83188	4610.5515	1.83241	4621.8752
7/8	1.83138	4599.9480	1.83191	4611.2588	1.83244	4622.5834
15/16	1.83141	4600.6545	1.83194	4611.9662	1.83248	4623.2917

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.83251	4624.0000	1.83304	4635.3403	1.83357	4646.6944
$\frac{1}{16}$	1.83254	4624.7084	1.83307	4636.0495	1.83361	4647.4045
$\frac{1}{8}$	1.83258	4625.4168	1.83311	4636.7588	1.83364	4648.1147
$\frac{3}{16}$	1.83261	4626.1252	1.83314	4637.4681	1.83367	4648.8249
$\frac{1}{4}$	1.83264	4626.8338	1.83317	4638.1775	1.83370	4649.5352
$\frac{5}{16}$	1.83268	4627.5423	1.83321	4638.8870	1.83374	4650.2455
$\frac{3}{8}$	1.83271	4628.2510	1.83324	4639.5965	1.83377	4650.9558
$\frac{7}{16}$	1.83274	4628.9597	1.83327	4640.3060	1.83380	4651.6663
$\frac{1}{2}$	1.83277	4629.6684	1.83331	4641.0156	1.83384	4652.3767
$\frac{9}{16}$	1.83281	4630.3772	1.83334	4641.7253	1.83387	4653.0873
$\frac{5}{8}$	1.83284	4631.0860	1.83337	4642.4350	1.83390	4653.7979
$\frac{11}{16}$	1.83287	4631.7949	1.83341	4643.1448	1.83394	4654.5085
$\frac{3}{4}$	1.83291	4632.5039	1.83344	4643.8546	1.83397	4655.2192
$\frac{13}{16}$	1.83294	4633.2129	1.83347	4644.5645	1.83400	4655.9299
$\frac{7}{8}$	1.83297	4633.9220	1.83351	4645.2744	1.83404	4656.6407
$1\frac{1}{16}$	1.83301	4634.6311	1.83354	4645.9844	1.83407	4657.3516

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.83410	4658.0625	1.83463	4669.4444	1.83516	4680.8403
$\frac{1}{16}$	1.83414	4658.7735	1.83467	4670.1563	1.83519	4681.5530
$\frac{1}{8}$	1.83417	4659.4845	1.83470	4670.8682	1.83523	4682.2657
$\frac{3}{16}$	1.83420	4660.1956	1.83473	4671.5801	1.83526	4682.9785
$\frac{1}{4}$	1.83424	4660.9067	1.83476	4672.2921	1.83529	4683.6914
$\frac{5}{16}$	1.83427	4661.6179	1.83480	4673.0042	1.83533	4684.4043
$\frac{3}{8}$	1.83430	4662.3291	1.83483	4673.7163	1.83536	4685.1173
$\frac{7}{16}$	1.83433	4663.0404	1.83486	4674.4284	1.83539	4685.8303
$\frac{1}{2}$	1.83437	4663.7517	1.83490	4675.1406	1.83543	4686.5434
$\frac{9}{16}$	1.83440	4664.4631	1.83493	4675.8529	1.83546	4687.2565
$\frac{5}{8}$	1.83443	4665.1746	1.83496	4676.5652	1.83549	4687.9697
$\frac{11}{16}$	1.83447	4665.8861	1.83500	4677.2776	1.83553	4688.6830
$\frac{3}{4}$	1.83450	4666.5977	1.83503	4677.9900	1.83556	4689.3963
$\frac{13}{16}$	1.83453	4667.3093	1.83506	4678.7025	1.83559	4690.1096
$\frac{7}{8}$	1.83457	4668.0209	1.83510	4679.4150	1.83562	4690.8230
$1\frac{1}{16}$	1.83460	4668.7327	1.83513	4680.1276	1.83566	4691.5365

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.83569	4692.2500	1.83622	4703.6736	1.83675	4715.1111
$\frac{1}{16}$	1.83572	4692.9636	1.83625	4704.3880	1.83678	4715.8264
$\frac{1}{8}$	1.83576	4693.6772	1.83628	4705.1025	1.83681	4716.5418
$\frac{3}{16}$	1.83579	4694.3909	1.83632	4705.8171	1.83684	4717.2572
$\frac{1}{4}$	1.83582	4695.1046	1.83635	4706.5317	1.83688	4717.9727
$\frac{5}{16}$	1.83586	4695.8184	1.83638	4707.2463	1.83691	4718.6882
$\frac{3}{8}$	1.83589	4696.5322	1.83642	4707.9610	1.83694	4719.4038
$\frac{7}{16}$	1.83592	4697.2461	1.83645	4708.6758	1.83698	4720.1194
$\frac{1}{2}$	1.83595	4697.9601	1.83648	4709.3906	1.83701	4720.8351
$\frac{9}{16}$	1.83599	4698.6741	1.83652	4710.1055	1.83704	4721.5508
$\frac{5}{8}$	1.83602	4699.3881	1.83655	4710.8204	1.83708	4722.2666
$\frac{11}{16}$	1.83605	4700.1022	1.83658	4711.5354	1.83711	4722.9824
$\frac{3}{4}$	1.83609	4700.8164	1.83661	4712.2504	1.83714	4723.6984
$\frac{13}{16}$	1.83612	4701.5306	1.83665	4712.9655	1.83717	4724.4143
$\frac{7}{8}$	1.83615	4702.2449	1.83668	4713.6807	1.83721	4725.1303
$\frac{15}{16}$	1.83619	4702.9592	1.83671	4714.3959	1.83724	4725.8464
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.83727	4726.5625	1.83780	4738.0278	1.83832	4749.5069
$\frac{1}{16}$	1.83731	4727.2787	1.83783	4738.7448	1.83836	4750.2249
$\frac{1}{8}$	1.83734	4727.9949	1.83786	4739.4619	1.83839	4750.9428
$\frac{3}{16}$	1.83737	4728.7112	1.83790	4740.1791	1.83842	4751.6608
$\frac{1}{4}$	1.83740	4729.4275	1.83793	4740.8963	1.83846	4752.3789
$\frac{5}{16}$	1.83744	4730.1439	1.83796	4741.6135	1.83849	4753.0970
$\frac{3}{8}$	1.83747	4730.8604	1.83800	4742.3308	1.83852	4753.8152
$\frac{7}{16}$	1.83750	4731.5769	1.83803	4743.0482	1.83855	4754.5334
$\frac{1}{2}$	1.83754	4732.2934	1.83806	4743.7656	1.83859	4755.2517
$\frac{9}{16}$	1.83757	4733.0100	1.83809	4744.4831	1.83862	4755.9701
$\frac{5}{8}$	1.83760	4733.7267	1.83813	4745.2006	1.83865	4756.6885
$\frac{11}{16}$	1.83763	4734.4434	1.83816	4745.9182	1.83869	4757.4069
$\frac{3}{4}$	1.83767	4735.1602	1.83819	4746.6359	1.83872	4758.1254
$\frac{13}{16}$	1.83770	4735.8770	1.83823	4747.3535	1.83875	4758.8440
$\frac{7}{8}$	1.83773	4736.5939	1.83826	4748.0713	1.83878	4759.5626
$\frac{15}{16}$	1.83777	4737.3108	1.83829	4748.7891	1.83882	4760.2813

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.83885	4761.0000	1.83937	4772.5069	1.83990	4784.0278
$\frac{1}{16}$	1.83888	4761.7188	1.83941	4773.2266	1.83993	4784.7483
$\frac{1}{8}$	1.83891	4762.4376	1.83944	4773.9463	1.83996	4785.4689
$\frac{3}{16}$	1.83895	4763.1565	1.83947	4774.6660	1.83999	4786.1895
$\frac{1}{4}$	1.83898	4763.8754	1.83950	4775.3859	1.84003	4786.9102
$\frac{5}{16}$	1.83901	4764.5944	1.83954	4776.1057	1.84006	4787.6309
$\frac{3}{8}$	1.83905	4765.3135	1.83957	4776.8256	1.84009	4788.3517
$\frac{7}{16}$	1.83908	4766.0326	1.83960	4777.5456	1.84013	4789.0725
$\frac{1}{2}$	1.83911	4766.7517	1.83964	4778.2656	1.84016	4789.7934
$\frac{9}{16}$	1.83914	4767.4709	1.83967	4778.9857	1.84019	4790.5144
$\frac{5}{8}$	1.83918	4768.1902	1.83970	4779.7058	1.84022	4791.2354
$\frac{11}{16}$	1.83921	4768.9095	1.83973	4780.4260	1.84026	4791.9564
$\frac{3}{4}$	1.83924	4769.6289	1.83977	4781.1463	1.84029	4792.6775
$\frac{13}{16}$	1.83928	4770.3483	1.83980	4781.8666	1.84032	4793.3987
$\frac{7}{8}$	1.83931	4771.0678	1.83983	4782.5869	1.84035	4794.1199
$\frac{15}{16}$	1.83934	4771.7874	1.83986	4783.3073	1.84039	4794.8412
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84042	4795.5625	1.84094	4807.1111	1.84146	4818.6736
$\frac{1}{16}$	1.84045	4796.2839	1.84097	4807.8334	1.84150	4819.3967
$\frac{1}{8}$	1.84049	4797.0053	1.84101	4808.5557	1.84153	4820.1199
$\frac{3}{16}$	1.84052	4797.7268	1.84104	4809.2780	1.84156	4820.8431
$\frac{1}{4}$	1.84055	4798.4484	1.84107	4810.0004	1.84159	4821.5664
$\frac{5}{16}$	1.84058	4799.1699	1.84111	4810.7229	1.84163	4822.2897
$\frac{3}{8}$	1.84062	4799.8916	1.84114	4811.4454	1.84166	4823.0131
$\frac{7}{16}$	1.84065	4800.6133	1.84117	4812.1680	1.84169	4823.7366
$\frac{1}{2}$	1.84068	4801.3351	1.84120	4812.8906	1.84172	4824.4601
$\frac{9}{16}$	1.84071	4802.0569	1.84124	4813.6133	1.84176	4825.1836
$\frac{5}{8}$	1.84075	4802.7788	1.84127	4814.3360	1.84179	4825.9072
$\frac{11}{16}$	1.84078	4803.5007	1.84130	4815.0588	1.84182	4826.6309
$\frac{3}{4}$	1.84081	4804.2227	1.84133	4815.7817	1.84185	4827.3546
$\frac{13}{16}$	1.84084	4804.9447	1.84137	4816.5046	1.84189	4828.0784
$\frac{7}{8}$	1.84088	4805.6668	1.84140	4817.2275	1.84192	4828.8022
$\frac{15}{16}$	1.84091	4806.3889	1.84143	4817.9505	1.84195	4829.5261

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84198	4830.2500	1.84251	4841.8403	1.84303	4853.4444
$\frac{1}{16}$	1.84202	4830.9740	1.84254	4842.5651	1.84306	4854.1702
$\frac{1}{8}$	1.84205	4831.6980	1.84257	4843.2900	1.84309	4854.8959
$\frac{3}{16}$	1.84208	4832.4221	1.84260	4844.0150	1.84312	4855.6218
$\frac{1}{4}$	1.84211	4833.1463	1.84264	4844.7400	1.84315	4856.3477
$\frac{5}{16}$	1.84215	4833.8705	1.84267	4845.4651	1.84319	4857.0736
$\frac{3}{8}$	1.84218	4834.5947	1.84270	4846.1902	1.84322	4857.7996
$\frac{7}{16}$	1.84221	4835.3190	1.84273	4846.9154	1.84325	4858.5256
$\frac{1}{2}$	1.84225	4836.0434	1.84277	4847.6406	1.84328	4859.2517
$\frac{9}{16}$	1.84228	4836.7678	1.84280	4848.3659	1.84332	4859.9779
$\frac{5}{8}$	1.84231	4837.4923	1.84283	4849.0913	1.84335	4860.7041
$\frac{11}{16}$	1.84234	4838.2168	1.84286	4849.8167	1.84338	4861.4304
$\frac{3}{4}$	1.84238	4838.9414	1.84290	4850.5421	1.84341	4862.1567
$\frac{13}{16}$	1.84241	4839.6660	1.84293	4851.2676	1.84345	4862.8831
$\frac{7}{8}$	1.84244	4840.3907	1.84296	4851.9932	1.84348	4863.6095
$\frac{15}{16}$	1.84247	4841.1155	1.84299	4852.7188	1.84351	4864.3360
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84354	4865.0625	1.84406	4876.6944	1.84458	4888.3403
$\frac{1}{16}$	1.84358	4865.7891	1.84410	4877.4219	1.84461	4889.0686
$\frac{1}{8}$	1.84361	4866.5157	1.84413	4878.1494	1.84465	4889.7970
$\frac{3}{16}$	1.84364	4867.2424	1.84416	4878.8770	1.84468	4890.5254
$\frac{1}{4}$	1.84367	4867.9692	1.84419	4879.6046	1.84471	4891.2539
$\frac{5}{16}$	1.84371	4868.6960	1.84422	4880.3323	1.84474	4891.9824
$\frac{3}{8}$	1.84374	4869.4229	1.84426	4881.0600	1.84477	4892.7110
$\frac{7}{16}$	1.84377	4870.1498	1.84429	4881.7878	1.84481	4893.4397
$\frac{1}{2}$	1.84380	4870.8767	1.84432	4882.5156	1.84484	4894.1684
$\frac{9}{16}$	1.84384	4871.6038	1.84435	4883.2435	1.84487	4894.8972
$\frac{5}{8}$	1.84387	4872.3308	1.84439	4883.9715	1.84490	4895.6260
$\frac{11}{16}$	1.84390	4873.0580	1.84442	4884.6995	1.84494	4896.3548
$\frac{3}{4}$	1.84393	4873.7852	1.84445	4885.4275	1.84497	4897.0838
$\frac{13}{16}$	1.84397	4874.5124	1.84448	4886.1556	1.84500	4897.8127
$\frac{7}{8}$	1.84400	4875.2397	1.84452	4886.8838	1.84503	4898.5418
$\frac{15}{16}$	1.84403	4875.9670	1.84455	4887.6120	1.84507	4899.2709



# 70'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84510	4900.0000	1.84561	4911.6736	1.84613	4923.3611
$\frac{1}{16}$	1.84513	4900.7292	1.84565	4912.4037	1.84616	4924.0920
$\frac{1}{8}$	1.84516	4901.4584	1.84568	4913.1338	1.84620	4924.8230
$\frac{3}{16}$	1.84519	4902.1877	1.84571	4913.8640	1.84623	4925.5541
$\frac{1}{4}$	1.84523	4902.9171	1.84574	4914.5942	1.84626	4926.2852
$\frac{5}{16}$	1.84526	4903.6465	1.84578	4915.3245	1.84629	4927.0163
$\frac{3}{8}$	1.84529	4904.3760	1.84581	4916.0548	1.84632	4927.7475
$\frac{7}{16}$	1.84532	4905.1055	1.84584	4916.7852	1.84636	4928.4788
$\frac{1}{2}$	1.84536	4905.8351	1.84587	4917.5156	1.84639	4929.2101
$\frac{9}{16}$	1.84539	4906.5647	1.84591	4918.2461	1.84642	4929.9414
$\frac{5}{8}$	1.84542	4907.2944	1.84594	4918.9767	1.84645	4930.6729
$\frac{11}{16}$	1.84545	4908.0241	1.84597	4919.7073	1.84649	4931.4043
$\frac{3}{4}$	1.84549	4908.7539	1.84600	4920.4379	1.84652	4932.1359
$\frac{13}{16}$	1.84552	4909.4838	1.84603	4921.1686	1.84655	4932.8674
$\frac{7}{8}$	1.84555	4910.2137	1.84607	4921.8994	1.84658	4933.5991
$\frac{15}{16}$	1.84558	4910.9436	1.84610	4922.6302	1.84661	4934.3308

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84665	4935.0625	1.84716	4946.7778	1.84768	4958.5069
$\frac{1}{16}$	1.84668	4935.7943	1.84719	4947.5104	1.84771	4959.2405
$\frac{1}{8}$	1.84671	4936.5262	1.84723	4948.2432	1.84774	4959.9741
$\frac{3}{16}$	1.84674	4937.2581	1.84726	4948.9759	1.84777	4960.7077
$\frac{1}{4}$	1.84678	4937.9900	1.84729	4949.7088	1.84780	4961.4414
$\frac{5}{16}$	1.84681	4938.7220	1.84732	4950.4417	1.84784	4962.1752
$\frac{3}{8}$	1.84684	4939.4541	1.84735	4951.1746	1.84787	4962.9090
$\frac{7}{16}$	1.84687	4940.1862	1.84739	4951.9076	1.84790	4963.6428
$\frac{1}{2}$	1.84690	4940.9184	1.84742	4952.6406	1.84793	4964.3767
$\frac{9}{16}$	1.84694	4941.6506	1.84745	4953.3737	1.84796	4965.1107
$\frac{5}{8}$	1.84697	4942.3829	1.84748	4954.1069	1.84800	4965.8447
$\frac{11}{16}$	1.84700	4943.1153	1.84751	4954.8401	1.84803	4966.5788
$\frac{3}{4}$	1.84703	4943.8477	1.84755	4955.5734	1.84806	4967.3129
$\frac{13}{16}$	1.84706	4944.5801	1.84758	4956.3067	1.84809	4968.0471
$\frac{7}{8}$	1.84710	4945.3126	1.84761	4957.0400	1.84812	4968.7814
$\frac{15}{16}$	1.84713	4946.0452	1.84764	4957.7735	1.84816	4969.5157

# 70'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84819	4970.2500	1.84870	4982.0069	1.84921	4993.7778
1/16	1.84822	4970.9844	1.84873	4982.7422	1.84925	4994.5139
1/8	1.84825	4971.7189	1.84877	4983.4775	1.84928	4995.2501
3/16	1.84829	4972.4534	1.84880	4984.2129	1.84931	4995.9864
1/4	1.84832	4973.1879	1.84883	4984.9484	1.84934	4996.7227
5/16	1.84835	4973.9226	1.84886	4985.6838	1.84937	4997.4590
3/8	1.84838	4974.6572	1.84889	4986.4194	1.84941	4998.1954
7/16	1.84841	4975.3920	1.84893	4987.1550	1.84944	4998.9319
1/2	1.84845	4976.1267	1.84896	4987.8906	1.84947	4999.6684
9/16	1.84848	4976.8616	1.84899	4988.6263	1.84950	5000.4050
5/8	1.84851	4977.5965	1.84902	4989.3621	1.84953	5001.1416
11/16	1.84854	4978.3314	1.84905	4990.0979	1.84957	5001.8783
3/4	1.84857	4979.0664	1.84909	4990.8338	1.84960	5002.6150
13/16	1.84861	4979.8015	1.84912	4991.5697	1.84963	5003.3518
7/8	1.84864	4980.5366	1.84915	4992.3057	1.84966	5004.0887
15/16	1.84867	4981.2717	1.84918	4993.0417	1.84969	5004.8255
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.84973	5005.5625	1.85024	5017.3611	1.85075	5029.1736
1/16	1.84976	5006.2995	1.85027	5018.0990	1.85078	5029.9124
1/8	1.84979	5007.0366	1.85030	5018.8369	1.85081	5030.6512
3/16	1.84982	5007.7737	1.85033	5019.5749	1.85084	5031.3900
1/4	1.84985	5008.5109	1.85037	5020.3129	1.85088	5032.1289
5/16	1.84989	5009.2481	1.85040	5021.0510	1.85091	5032.8679
3/8	1.84992	5009.9854	1.85043	5021.7892	1.85094	5033.6069
7/16	1.84995	5010.7227	1.85046	5022.5274	1.85097	5034.3459
1/2	1.84998	5011.4601	1.85049	5023.2656	1.85100	5035.0851
9/16	1.85001	5012.1975	1.85052	5024.0039	1.85104	5035.8242
5/8	1.85005	5012.9350	1.85056	5024.7423	1.85107	5036.5635
11/16	1.85008	5013.6726	1.85059	5025.4807	1.85110	5037.3028
3/4	1.85011	5014.4102	1.85062	5026.2192	1.85113	5038.0421
13/16	1.85014	5015.1478	1.85065	5026.9577	1.85116	5038.7815
7/8	1.85017	5015.8855	1.85068	5027.6963	1.85119	5039.5209
15/16	1.85021	5016.6233	1.85072	5028.4349	1.85123	5040.2604

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.85126	5041.0000	1.85177	5052.8403	1.85228	5064.6944
$\frac{1}{16}$	1.85129	5041.7396	1.85180	5053.5808	1.85231	5065.4358
$\frac{1}{8}$	1.85132	5042.4793	1.85183	5054.3213	1.85234	5066.1772
$\frac{3}{16}$	1.85135	5043.2190	1.85186	5055.0619	1.85237	5066.9186
$\frac{1}{4}$	1.85139	5043.9588	1.85190	5055.8025	1.85240	5067.6602
$\frac{5}{16}$	1.85142	5044.6986	1.85193	5056.5432	1.85244	5068.4017
$\frac{3}{8}$	1.85145	5045.4385	1.85196	5057.2840	1.85247	5069.1433
$\frac{7}{16}$	1.85148	5046.1784	1.85199	5058.0248	1.85250	5069.8850
$\frac{1}{2}$	1.85151	5046.9184	1.85202	5058.7656	1.85253	5070.6267
$\frac{9}{16}$	1.85154	5047.6584	1.85205	5059.5065	1.85256	5071.3685
$\frac{5}{8}$	1.85158	5048.3985	1.85209	5060.2475	1.85259	5072.1104
$\frac{11}{16}$	1.85161	5049.1387	1.85212	5060.9885	1.85263	5072.8522
$\frac{3}{4}$	1.85164	5049.8789	1.85215	5061.7296	1.85266	5073.5942
$\frac{13}{16}$	1.85167	5050.6192	1.85218	5062.4707	1.85269	5074.3362
$\frac{7}{8}$	1.85170	5051.3595	1.85221	5063.2119	1.85272	5075.0782
$\frac{15}{16}$	1.85174	5052.0999	1.85224	5063.9532	1.85275	5075.8203
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.85278	5076.5625	1.85329	5088.4444	1.85380	5100.3403
$\frac{1}{16}$	1.85282	5077.3047	1.85332	5089.1875	1.85383	5101.0842
$\frac{1}{8}$	1.85285	5078.0470	1.85336	5089.9307	1.85386	5101.8282
$\frac{3}{16}$	1.85288	5078.7893	1.85339	5090.6739	1.85389	5102.5723
$\frac{1}{4}$	1.85291	5079.5317	1.85342	5091.4171	1.85393	5103.3164
$\frac{5}{16}$	1.85294	5080.2741	1.85345	5092.1604	1.85396	5104.0606
$\frac{3}{8}$	1.85298	5081.0166	1.85348	5092.9038	1.85399	5104.8048
$\frac{7}{16}$	1.85301	5081.7591	1.85351	5093.6472	1.85402	5105.5491
$\frac{1}{2}$	1.85304	5082.5017	1.85355	5094.3906	1.85405	5106.2934
$\frac{9}{16}$	1.85307	5083.2444	1.85358	5095.1341	1.85408	5107.0378
$\frac{5}{8}$	1.85310	5083.9871	1.85361	5095.8777	1.85412	5107.7822
$\frac{11}{16}$	1.85313	5084.7298	1.85364	5096.6213	1.85415	5108.5267
$\frac{3}{4}$	1.85317	5085.4727	1.85367	5097.3650	1.85418	5109.2713
$\frac{13}{16}$	1.85320	5086.2155	1.85370	5098.1088	1.85421	5110.0159
$\frac{7}{8}$	1.85323	5086.9584	1.85374	5098.8525	1.85424	5110.7605
$\frac{15}{16}$	1.85326	5087.7014	1.85377	5099.5964	1.85427	5111.5052

# 71'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.85431	5112.2500	1.85481	5124.1736	1.85532	5136.1111
1/16	1.85434	5112.9948	1.85484	5124.9193	1.85535	5136.8577
1/8	1.85437	5113.7397	1.85488	5125.6650	1.85538	5137.6043
3/16	1.85440	5114.4846	1.85491	5126.4108	1.85541	5138.3509
1/4	1.85443	5115.2296	1.85494	5127.1567	1.85544	5139.0977
5/16	1.85446	5115.9746	1.85497	5127.9026	1.85547	5139.8444
3/8	1.85450	5116.7197	1.85500	5128.6485	1.85551	5140.5913
7/16	1.85453	5117.4649	1.85503	5129.3946	1.85554	5141.3381
1/2	1.85456	5118.2101	1.85506	5130.1406	1.85557	5142.0851
9/16	1.85459	5118.9553	1.85510	5130.8867	1.85560	5142.8321
5/8	1.85462	5119.7006	1.85513	5131.6329	1.85563	5143.5791
11/16	1.85465	5120.4460	1.85516	5132.3792	1.85566	5144.3262
3/4	1.85469	5121.1914	1.85519	5133.1254	1.85570	5145.0734
13/16	1.85472	5121.9369	1.85522	5133.8718	1.85573	5145.8206
7/8	1.85475	5122.6824	1.85525	5134.6182	1.85576	5146.5678
15/16	1.85478	5123.4280	1.85529	5135.3646	1.85579	5147.3151

Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.85582	5148.0625	1.85633	5160.0278	1.85683	5172.0069
1/16	1.85585	5148.8099	1.85636	5160.7761	1.85686	5172.7561
1/8	1.85588	5149.5574	1.85639	5161.5244	1.85689	5173.5053
3/16	1.85592	5150.3049	1.85642	5162.2728	1.85692	5174.2546
1/4	1.85595	5151.0525	1.85645	5163.0213	1.85696	5175.0039
5/16	1.85598	5151.8002	1.85648	5163.7698	1.85699	5175.7533
3/8	1.85601	5152.5479	1.85651	5164.5183	1.85702	5176.5027
7/16	1.85604	5153.2956	1.85655	5165.2670	1.85705	5177.2522
1/2	1.85607	5154.0434	1.85658	5166.0156	1.85708	5178.0017
9/16	1.85611	5154.7913	1.85661	5166.7644	1.85711	5178.7513
5/8	1.85614	5155.5392	1.85664	5167.5131	1.85714	5179.5010
11/16	1.85617	5156.2871	1.85667	5168.2620	1.85718	5180.2507
3/4	1.85620	5157.0352	1.85670	5169.0109	1.85721	5181.0004
13/16	1.85623	5157.7832	1.85674	5169.7598	1.85724	5181.7502
7/8	1.85626	5158.5314	1.85677	5170.5088	1.85727	5182.5001
15/16	1.85629	5159.2795	1.85680	5171.2578	1.85730	5183.2500

72'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.85733	5184.0000	1.85783	5196.0069	1.85834	5208.0278
1/16	1.85736	5184.7500	1.85787	5196.7578	1.85837	5208.7795
1/8	1.85740	5185.5001	1.85790	5197.5088	1.85840	5209.5314
3/16	1.85743	5186.2502	1.85793	5198.2598	1.85843	5210.2832
1/4	1.85746	5187.0004	1.85796	5199.0109	1.85846	5211.0352
5/16	1.85749	5187.7507	1.85799	5199.7620	1.85849	5211.7871
3/8	1.85752	5188.5010	1.85802	5200.5131	1.85852	5212.5392
7/16	1.85755	5189.2513	1.85805	5201.2644	1.85856	5213.2913
1/2	1.85758	5190.0017	1.85809	5202.0156	1.85859	5214.0434
9/16	1.85762	5190.7522	1.85812	5202.7670	1.85862	5214.7956
5/8	1.85765	5191.5027	1.85815	5203.5183	1.85865	5215.5479
11/16	1.85768	5192.2533	1.85818	5204.2698	1.85868	5216.3002
3/4	1.85771	5193.0039	1.85821	5205.0213	1.85871	5217.0525
13/16	1.85774	5193.7546	1.85824	5205.7728	1.85874	5217.8049
7/8	1.85777	5194.5053	1.85827	5206.5244	1.85878	5218.5574
15/16	1.85780	5195.2561	1.85831	5207.2761	1.85881	5219.3099

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.85884	5220.0625	1.85934	5232.1111	1.85984	5244.1736
1/16	1.85887	5220.8151	1.85937	5232.8646	1.85987	5244.9280
1/8	1.85890	5221.5678	1.85940	5233.6182	1.85990	5245.6824
3/16	1.85893	5222.3206	1.85943	5234.3718	1.85993	5246.4369
1/4	1.85896	5223.0734	1.85946	5235.1254	1.85996	5247.1914
5/16	1.85899	5223.8262	1.85949	5235.8792	1.85999	5247.9460
3/8	1.85903	5224.5791	1.85953	5236.6329	1.86003	5248.7006
7/16	1.85906	5225.3321	1.85956	5237.3867	1.86006	5249.4553
1/2	1.85909	5226.0851	1.85959	5238.1406	1.86009	5250.2101
9/16	1.85912	5226.8381	1.85962	5238.8946	1.86012	5250.9649
5/8	1.85915	5227.5913	1.85965	5239.6485	1.86015	5251.7197
11/16	1.85918	5228.3444	1.85968	5240.4026	1.86018	5252.4746
3/4	1.85921	5229.0977	1.85971	5241.1567	1.86021	5253.2296
13/16	1.85924	5229.8509	1.85974	5241.9108	1.86024	5253.9846
7/8	1.85928	5230.6043	1.85978	5242.6650	1.86028	5254.7397
15/16	1.85931	5231.3577	1.85981	5243.4193	1.86031	5255.4948

# 72'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86034	5256.2500	1.86084	5268.3403	1.86134	5280.4444
1/16	1.86037	5257.0052	1.86087	5269.0964	1.86137	5281.2014
1/8	1.86040	5257.7605	1.86090	5269.8525	1.86140	5281.9584
3/16	1.86043	5258.5159	1.86093	5270.6088	1.86143	5282.7155
1/4	1.86046	5259.2713	1.86096	5271.3650	1.86146	5283.4727
5/16	1.86049	5260.0267	1.86099	5272.1213	1.86149	5284.2298
3/8	1.86053	5260.7822	1.86102	5272.8777	1.86152	5284.9871
7/16	1.86056	5261.5378	1.86106	5273.6341	1.86155	5285.7444
1/2	1.86059	5262.2934	1.86109	5274.3906	1.86158	5286.5017
9/16	1.86062	5263.0491	1.86112	5275.1472	1.86162	5287.2591
5/8	1.86065	5263.8048	1.86115	5275.9038	1.86165	5288.0166
11/16	1.86068	5264.5606	1.86118	5276.6604	1.86168	5288.7741
3/4	1.86071	5265.3164	1.86121	5277.4171	1.86171	5289.5317
13/16	1.86074	5266.0723	1.86124	5278.1739	1.86174	5290.2893
7/8	1.86077	5266.8282	1.86127	5278.9307	1.86177	5291.0470
15/16	1.86081	5267.5842	1.86130	5279.6875	1.86180	5291.8047

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86183	5292.5625	1.86233	5304.6944	1.86283	5316.8403
1/16	1.86186	5293.3203	1.86236	5305.4532	1.86286	5317.5999
1/8	1.86190	5294.0782	1.86239	5306.2119	1.86289	5318.3595
3/16	1.86193	5294.8362	1.86242	5306.9707	1.86292	5319.1192
1/4	1.86196	5295.5942	1.86245	5307.7296	1.86295	5319.8789
5/16	1.86199	5296.3522	1.86249	5308.4885	1.86298	5320.6387
3/8	1.86202	5297.1104	1.86252	5309.2475	1.86301	5321.3985
7/16	1.86205	5297.8685	1.86255	5310.0065	1.86304	5322.1584
1/2	1.86208	5298.6267	1.86258	5310.7656	1.86307	5322.9184
9/16	1.86211	5299.3850	1.86261	5311.5248	1.86311	5323.6784
5/8	1.86214	5300.1433	1.86264	5312.2840	1.86314	5324.4385
11/16	1.86217	5300.9017	1.86267	5313.0432	1.86317	5325.1986
3/4	1.86221	5301.6602	1.86270	5313.8025	1.86320	5325.9588
13/16	1.86224	5302.4186	1.86273	5314.5619	1.86323	5326.7190
7/8	1.86227	5303.1772	1.86276	5315.3213	1.86326	5327.4793
15/16	1.86230	5303.9358	1.86280	5316.0808	1.86329	5328.2396

# 73'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86332	5329.0000	1.86382	5341.1736	1.86431	5353.3611
1/16	1.86335	5329.7604	1.86385	5341.9349	1.86434	5354.1233
1/8	1.86338	5330.5209	1.86388	5342.6963	1.86438	5354.8855
3/16	1.86342	5331.2815	1.86391	5343.4577	1.86441	5355.6478
1/4	1.86345	5332.0421	1.86394	5344.2192	1.86444	5356.4102
5/16	1.86348	5332.8028	1.86397	5344.9807	1.86447	5357.1726
3/8	1.86351	5333.5635	1.86400	5345.7423	1.86450	5357.9350
7/16	1.86354	5334.3242	1.86403	5346.5039	1.86453	5358.6975
1/2	1.86357	5335.0851	1.86407	5347.2656	1.86456	5359.4601
9/16	1.86360	5335.8459	1.86410	5348.0274	1.86459	5360.2227
5/8	1.86363	5336.6069	1.86413	5348.7892	1.86462	5360.9854
11/16	1.86366	5337.3679	1.86416	5349.5510	1.86465	5361.7481
3/4	1.86369	5338.1289	1.86419	5350.3129	1.86468	5362.5109
13/16	1.86373	5338.8900	1.86422	5351.0749	1.86471	5363.2737
7/8	1.86376	5339.6512	1.86425	5351.8369	1.86475	5364.0366
15/16	1.86379	5340.4124	1.86428	5352.5990	1.86478	5364.7995
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86481	5365.5625	1.86530	5377.7778	1.86579	5390.0069
1/16	1.86484	5366.3255	1.86533	5378.5417	1.86583	5390.7717
1/8	1.86487	5367.0887	1.86536	5379.3057	1.86586	5391.5366
3/16	1.86490	5367.8518	1.86539	5380.0697	1.86589	5392.3015
1/4	1.86493	5368.6150	1.86542	5380.8338	1.86592	5393.0664
5/16	1.86496	5369.3783	1.86546	5381.5979	1.86595	5393.8314
3/8	1.86499	5370.1416	1.86549	5382.3621	1.86598	5394.5965
7/16	1.86502	5370.9050	1.86552	5383.1263	1.86601	5395.3616
1/2	1.86505	5371.6684	1.86555	5383.8906	1.86604	5396.1267
9/16	1.86509	5372.4319	1.86558	5384.6550	1.86607	5396.8920
5/8	1.86512	5373.1954	1.86561	5385.4194	1.86610	5397.6572
11/16	1.86515	5373.9590	1.86564	5386.1838	1.86613	5398.4226
3/4	1.86518	5374.7227	1.86567	5386.9484	1.86616	5399.1879
13/16	1.86521	5375.4864	1.86570	5387.7129	1.86620	5399.9534
7/8	1.86524	5376.2501	1.86573	5388.4775	1.86623	5400.7189
15/16	1.86527	5377.0139	1.86576	5389.2422	1.86626	5401.4844

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86629	5402.2500	1.86678	5414.5069	1.86727	5426.7778
$\frac{1}{16}$	1.86632	5403.0157	1.86681	5415.2735	1.86730	5427.5452
$\frac{1}{8}$	1.86635	5403.7814	1.86684	5416.0400	1.86733	5428.3126
$\frac{3}{16}$	1.86638	5404.5471	1.86687	5416.8067	1.86736	5429.0801
$\frac{1}{4}$	1.86641	5405.3129	1.86690	5417.5734	1.86739	5429.8477
$\frac{5}{16}$	1.86644	5406.0788	1.86693	5418.3401	1.86742	5430.6153
$\frac{3}{8}$	1.86647	5406.8447	1.86696	5419.1069	1.86746	5431.3829
$\frac{7}{16}$	1.86650	5407.6107	1.86699	5419.8737	1.86749	5432.1506
$\frac{1}{2}$	1.86653	5408.3767	1.86703	5420.6406	1.86752	5432.9184
$\frac{9}{16}$	1.86656	5409.1428	1.86706	5421.4076	1.86755	5433.6862
$\frac{5}{8}$	1.86659	5409.9090	1.86709	5422.1746	1.86758	5434.4541
$\frac{11}{16}$	1.86663	5410.6752	1.86712	5422.9417	1.86761	5435.2220
$\frac{3}{4}$	1.86666	5411.4414	1.86715	5423.7088	1.86764	5435.9900
$\frac{13}{16}$	1.86669	5412.2077	1.86718	5424.4759	1.86767	5436.7581
$\frac{7}{8}$	1.86672	5412.9741	1.86721	5425.2432	1.86770	5437.5262
$\frac{15}{16}$	1.86675	5413.7405	1.86724	5426.0104	1.86773	5438.2943

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86776	5439.0625	1.86825	5451.3611	1.86874	5463.6736
$\frac{1}{16}$	1.86779	5439.8308	1.86828	5452.1302	1.86877	5464.4436
$\frac{1}{8}$	1.86782	5440.5991	1.86831	5452.8994	1.86880	5465.2137
$\frac{3}{16}$	1.86785	5441.3674	1.86834	5453.6686	1.86883	5465.9838
$\frac{1}{4}$	1.86788	5442.1359	1.86838	5454.4379	1.86886	5466.7539
$\frac{5}{16}$	1.86792	5442.9043	1.86841	5455.2073	1.86890	5467.5241
$\frac{3}{8}$	1.86795	5443.6729	1.86844	5455.9767	1.86893	5468.2944
$\frac{7}{16}$	1.86798	5444.4414	1.86847	5456.7461	1.86896	5469.0647
$\frac{1}{2}$	1.86801	5445.2101	1.86850	5457.5156	1.86899	5469.8351
$\frac{9}{16}$	1.86804	5445.9788	1.86853	5458.2852	1.86902	5470.6055
$\frac{5}{8}$	1.86807	5446.7475	1.86856	5459.0548	1.86905	5471.3760
$\frac{11}{16}$	1.86810	5447.5163	1.86859	5459.8245	1.86908	5472.1465
$\frac{3}{4}$	1.86813	5448.2852	1.86862	5460.5942	1.86911	5472.9171
$\frac{13}{16}$	1.86816	5449.0541	1.86865	5461.3640	1.86914	5473.6877
$\frac{7}{8}$	1.86819	5449.8230	1.86868	5462.1338	1.86917	5474.4584
$\frac{15}{16}$	1.86822	5450.5920	1.86871	5462.9037	1.86920	5475.2292



Fractions of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.86923	5476.0000	1.86972	5488.3403	1.87021	5500.6944
$\frac{1}{16}$	1.86926	5476.7709	1.86975	5489.1120	1.87024	5501.4670
$\frac{1}{8}$	1.86929	5477.5418	1.86978	5489.8838	1.87027	5502.2397
$\frac{3}{16}$	1.86932	5478.3127	1.86981	5490.6556	1.87030	5503.0124
$\frac{1}{4}$	1.86935	5479.0838	1.86984	5491.4275	1.87033	5503.7852
$\frac{5}{16}$	1.86938	5479.8548	1.86987	5492.1995	1.87036	5504.5580
$\frac{3}{8}$	1.86942	5480.6260	1.86990	5492.9715	1.87039	5505.3308
$\frac{7}{16}$	1.86945	5481.3972	1.86993	5493.7435	1.87042	5506.1038
$\frac{1}{2}$	1.86948	5482.1684	1.86996	5494.5156	1.87045	5506.8767
$\frac{9}{16}$	1.86951	5482.9397	1.87000	5495.2878	1.87048	5507.6498
$\frac{5}{8}$	1.86954	5483.7110	1.87003	5496.0600	1.87051	5508.4229
$\frac{11}{16}$	1.86957	5484.4824	1.87006	5496.8323	1.87054	5509.1960
$\frac{3}{4}$	1.86960	5485.2539	1.87009	5497.6046	1.87057	5509.9692
$\frac{13}{16}$	1.86963	5486.0254	1.87012	5498.3770	1.87061	5510.7424
$\frac{7}{8}$	1.86966	5486.7970	1.87015	5499.1494	1.87064	5511.5157
$\frac{15}{16}$	1.86969	5487.5686	1.87018	5499.9219	1.87067	5512.2891

Fractions of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87070	5513.0625	1.87118	5525.4444	1.87167	5537.8403
$\frac{1}{16}$	1.87073	5513.8360	1.87121	5526.2188	1.87170	5538.6155
$\frac{1}{8}$	1.87076	5514.6095	1.87124	5526.9932	1.87173	5539.3907
$\frac{3}{16}$	1.87079	5515.3831	1.87127	5527.7676	1.87176	5540.1660
$\frac{1}{4}$	1.87082	5516.1567	1.87131	5528.5421	1.87179	5540.9414
$\frac{5}{16}$	1.87085	5516.9304	1.87134	5529.3167	1.87182	5541.7168
$\frac{3}{8}$	1.87088	5517.7041	1.87137	5530.0913	1.87185	5542.4923
$\frac{7}{16}$	1.87091	5518.4779	1.87140	5530.8659	1.87188	5543.2678
$\frac{1}{2}$	1.87094	5519.2517	1.87143	5531.6406	1.87191	5544.0434
$\frac{9}{16}$	1.87097	5520.0256	1.87146	5532.4154	1.87194	5544.8190
$\frac{5}{8}$	1.87100	5520.7996	1.87149	5533.1902	1.87197	5545.5947
$\frac{11}{16}$	1.87103	5521.5736	1.87152	5533.9651	1.87200	5546.3705
$\frac{3}{4}$	1.87106	5522.3477	1.87155	5534.7400	1.87203	5547.1463
$\frac{13}{16}$	1.87109	5523.1218	1.87158	5535.5150	1.87207	5547.9221
$\frac{7}{8}$	1.87112	5523.8959	1.87161	5536.2900	1.87210	5548.6980
$\frac{15}{16}$	1.87115	5524.6702	1.87164	5537.0651	1.87213	5549.4740

# 74'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87216	5550.2500	1.87264	5562.6736	1.87313	5575.1111
1/16	1.87219	5551.0261	1.87267	5563.4505	1.87316	5575.8889
1/8	1.87222	5551.8022	1.87270	5564.2275	1.87319	5576.6668
3/16	1.87225	5552.5784	1.87273	5565.0046	1.87322	5577.4447
1/4	1.87228	5553.3546	1.87276	5565.7817	1.87325	5578.2227
5/16	1.87231	5554.1309	1.87279	5566.5588	1.87328	5579.0007
3/8	1.87234	5554.9072	1.87282	5567.3360	1.87331	5579.7788
7/16	1.87237	5555.6836	1.87285	5568.1133	1.87334	5580.5569
1/2	1.87240	5556.4601	1.87288	5568.8906	1.87337	5581.3351
9/16	1.87243	5557.2366	1.87291	5569.6680	1.87340	5582.1133
5/8	1.87246	5558.0131	1.87295	5570.4454	1.87343	5582.8916
11/16	1.87249	5558.7897	1.87298	5571.2229	1.87346	5583.6699
3/4	1.87252	5559.5664	1.87301	5572.0004	1.87349	5584.4484
13/16	1.87255	5560.3431	1.87304	5572.7780	1.87352	5585.2268
7/8	1.87258	5561.1199	1.87307	5573.5557	1.87355	5586.0053
15/16	1.87261	5561.8967	1.87310	5574.3334	1.87358	5586.7839

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87361	5587.5625	1.87410	5600.0278	1.87458	5612.5069
1/16	1.87364	5588.3412	1.87413	5600.8073	1.87461	5613.2874
1/8	1.87367	5589.1199	1.87416	5601.5869	1.87464	5614.0678
3/16	1.87370	5589.8987	1.87419	5602.3666	1.87467	5614.8483
1/4	1.87373	5590.6775	1.87422	5603.1463	1.87470	5615.6289
5/16	1.87376	5591.4564	1.87425	5603.9260	1.87473	5616.4095
3/8	1.87379	5592.2354	1.87428	5604.7058	1.87476	5617.1902
7/16	1.87382	5593.0144	1.87431	5605.4857	1.87479	5617.9709
1/2	1.87385	5593.7934	1.87434	5606.2656	1.87482	5618.7517
9/16	1.87388	5594.5725	1.87437	5607.0456	1.87485	5619.5326
5/8	1.87391	5595.3517	1.87440	5607.8256	1.87488	5620.3135
11/16	1.87394	5596.1309	1.87443	5608.6057	1.87491	5621.0944
3/4	1.87397	5596.9102	1.87446	5609.3859	1.87494	5621.8754
13/16	1.87400	5597.6895	1.87449	5610.1660	1.87497	5622.6565
7/8	1.87403	5598.4689	1.87452	5610.9463	1.87500	5623.4376
15/16	1.87406	5599.2483	1.87455	5611.7266	1.87503	5624.2188

# 75'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87506	5625.0000	1.87554	5637.5069	1.87603	5650.0278
$\frac{1}{16}$	1.87509	5625.7813	1.87557	5638.2891	1.87606	5650.8108
$\frac{1}{8}$	1.87512	5626.5626	1.87560	5639.0713	1.87609	5651.5939
$\frac{3}{16}$	1.87515	5627.3440	1.87563	5639.8535	1.87612	5652.3770
$\frac{1}{4}$	1.87518	5628.1254	1.87566	5640.6359	1.87615	5653.1602
$\frac{5}{16}$	1.87521	5628.9069	1.87569	5641.4182	1.87618	5653.9434
$\frac{3}{8}$	1.87524	5629.6885	1.87572	5642.2006	1.87621	5654.7267
$\frac{7}{16}$	1.87527	5630.4701	1.87575	5642.9831	1.87624	5655.5100
$\frac{1}{2}$	1.87530	5631.2517	1.87578	5643.7656	1.87627	5656.2934
$\frac{9}{16}$	1.87533	5632.0334	1.87581	5644.5482	1.87630	5657.0769
$\frac{5}{8}$	1.87536	5632.8152	1.87584	5645.3308	1.87633	5657.8604
$\frac{11}{16}$	1.87539	5633.5970	1.87587	5646.1135	1.87636	5658.6439
$\frac{3}{4}$	1.87542	5634.3789	1.87590	5646.8963	1.87639	5659.4275
$\frac{13}{16}$	1.87545	5635.1608	1.87594	5647.6791	1.87642	5660.2112
$\frac{7}{8}$	1.87548	5635.9428	1.87597	5648.4619	1.87645	5660.9949
$\frac{15}{16}$	1.87551	5636.7249	1.87600	5649.2448	1.87648	5661.7787

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87651	5662.5625	1.87699	5675.1111	1.87747	5687.6736
$\frac{1}{16}$	1.87654	5663.3464	1.87702	5675.8959	1.87750	5688.4592
$\frac{1}{8}$	1.87657	5664.1303	1.87705	5676.6807	1.87753	5689.2449
$\frac{3}{16}$	1.87660	5664.9143	1.87708	5677.4655	1.87756	5690.0306
$\frac{1}{4}$	1.87663	5665.6984	1.87711	5678.2504	1.87759	5690.8164
$\frac{5}{16}$	1.87666	5666.4824	1.87714	5679.0354	1.87762	5691.6022
$\frac{3}{8}$	1.87669	5667.2666	1.87717	5679.8204	1.87765	5692.3881
$\frac{7}{16}$	1.87672	5668.0508	1.87720	5680.6055	1.87768	5693.1741
$\frac{1}{2}$	1.87675	5668.8351	1.87723	5681.3906	1.87771	5693.9601
$\frac{9}{16}$	1.87678	5669.6194	1.87726	5682.1758	1.87774	5694.7461
$\frac{5}{8}$	1.87681	5670.4038	1.87729	5682.9610	1.87777	5695.5322
$\frac{11}{16}$	1.87684	5671.1882	1.87732	5683.7463	1.87780	5696.3184
$\frac{3}{4}$	1.87687	5671.9727	1.87735	5684.5317	1.87783	5697.1046
$\frac{13}{16}$	1.87690	5672.7572	1.87738	5685.3171	1.87786	5697.8909
$\frac{7}{8}$	1.87693	5673.5418	1.87741	5686.1025	1.87789	5698.6772
$\frac{15}{16}$	1.87696	5674.3264	1.87744	5686.8880	1.87792	5699.4636

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87795	5700.2500	1.87843	5712.8403	1.87890	5725.4444
$\frac{1}{16}$	1.87798	5701.0365	1.87846	5713.6276	1.87893	5726.2327
$\frac{1}{8}$	1.87801	5701.8230	1.87849	5714.4150	1.87896	5727.0209
$\frac{3}{16}$	1.87804	5702.6096	1.87852	5715.2025	1.87899	5727.8093
$\frac{1}{4}$	1.87807	5703.3963	1.87855	5715.9900	1.87902	5728.5977
$\frac{5}{16}$	1.87810	5704.1830	1.87858	5716.7776	1.87905	5729.3861
$\frac{3}{8}$	1.87813	5704.9697	1.87861	5717.5652	1.87908	5730.1746
$\frac{7}{16}$	1.87816	5705.7565	1.87864	5718.3529	1.87911	5730.9631
$\frac{1}{2}$	1.87819	5706.5434	1.87867	5719.1406	1.87914	5731.7517
$\frac{9}{16}$	1.87822	5707.3303	1.87870	5719.9284	1.87917	5732.5404
$\frac{5}{8}$	1.87825	5708.1173	1.87873	5720.7163	1.87920	5733.3291
$\frac{11}{16}$	1.87828	5708.9043	1.87876	5721.5042	1.87923	5734.1179
$\frac{3}{4}$	1.87831	5709.6914	1.87879	5722.2921	1.87926	5734.9067
$\frac{13}{16}$	1.87834	5710.4785	1.87881	5723.0801	1.87929	5735.6956
$\frac{7}{8}$	1.87837	5711.2657	1.87884	5723.8682	1.87932	5736.4845
$\frac{15}{16}$	1.87840	5712.0530	1.87887	5724.6563	1.87935	5737.2735
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.87938	5738.0625	1.87986	5750.6944	1.88034	5763.3403
$\frac{1}{16}$	1.87941	5738.8516	1.87989	5751.4844	1.88037	5764.1311
$\frac{1}{8}$	1.87944	5739.6407	1.87992	5752.2744	1.88040	5764.9220
$\frac{3}{16}$	1.87947	5740.4299	1.87995	5753.0645	1.88043	5765.7129
$\frac{1}{4}$	1.87950	5741.2192	1.87998	5753.8546	1.88046	5766.5039
$\frac{5}{16}$	1.87953	5742.0085	1.88001	5754.6448	1.88049	5767.2949
$\frac{3}{8}$	1.87956	5742.7979	1.88004	5755.4350	1.88052	5768.0860
$\frac{7}{16}$	1.87959	5743.5873	1.88007	5756.2253	1.88055	5768.8772
$\frac{1}{2}$	1.87962	5744.3767	1.88010	5757.0156	1.88058	5769.6684
$\frac{9}{16}$	1.87965	5745.1663	1.88013	5757.8060	1.88061	5770.4597
$\frac{5}{8}$	1.87968	5745.9558	1.88016	5758.5965	1.88063	5771.2510
$\frac{11}{16}$	1.87971	5746.7455	1.88019	5759.3870	1.88066	5772.0423
$\frac{3}{4}$	1.87974	5747.5352	1.88022	5760.1775	1.88069	5772.8338
$\frac{13}{16}$	1.87977	5748.3249	1.88025	5760.9681	1.88072	5773.6252
$\frac{7}{8}$	1.87980	5749.1147	1.88028	5761.7588	1.88075	5774.4168
$\frac{15}{16}$	1.87983	5749.9045	1.88031	5762.5495	1.88078	5775.2084

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88081	5776.0000	1.88129	5788.6736	1.88176	5801.3611
$\frac{1}{16}$	1.88084	5776.7917	1.88132	5789.4662	1.88179	5802.1545
$\frac{1}{8}$	1.88087	5777.5834	1.88135	5790.2588	1.88182	5802.9480
$\frac{3}{16}$	1.88090	5778.3752	1.88138	5791.0515	1.88185	5803.7416
$\frac{1}{4}$	1.88093	5779.1671	1.88141	5791.8442	1.88188	5804.5352
$\frac{5}{16}$	1.88096	5779.9590	1.88144	5792.6370	1.88191	5805.3288
$\frac{3}{8}$	1.88099	5780.7510	1.88147	5793.4298	1.88194	5806.1225
$\frac{7}{16}$	1.88102	5781.5430	1.88150	5794.2227	1.88197	5806.9163
$\frac{1}{2}$	1.88105	5782.3351	1.88153	5795.0156	1.88200	5807.7101
$\frac{9}{16}$	1.88108	5783.1272	1.88156	5795.8086	1.88203	5808.5039
$\frac{5}{8}$	1.88111	5783.9194	1.88159	5796.6017	1.88206	5809.2979
$\frac{11}{16}$	1.88114	5784.7116	1.88162	5797.3948	1.88209	5810.0918
$\frac{3}{4}$	1.88117	5785.5039	1.88165	5798.1879	1.88212	5810.8859
$\frac{13}{16}$	1.88120	5786.2963	1.88168	5798.9811	1.88215	5811.6799
$\frac{7}{8}$	1.88123	5787.0887	1.88171	5799.7744	1.88218	5812.4741
$\frac{15}{16}$	1.88126	5787.8811	1.88174	5800.5677	1.88221	5813.2683

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88224	5814.0625	1.88271	5826.7778	1.88319	5839.5069
$\frac{1}{16}$	1.88227	5814.8568	1.88274	5827.5729	1.88322	5840.3030
$\frac{1}{8}$	1.88230	5815.6512	1.88277	5828.3682	1.88325	5841.0991
$\frac{3}{16}$	1.88233	5816.4456	1.88280	5829.1634	1.88328	5841.8952
$\frac{1}{4}$	1.88236	5817.2400	1.88283	5829.9588	1.88331	5842.6914
$\frac{5}{16}$	1.88239	5818.0345	1.88286	5830.7542	1.88334	5843.4877
$\frac{3}{8}$	1.88242	5818.8291	1.88289	5831.5496	1.88337	5844.2840
$\frac{7}{16}$	1.88245	5819.6237	1.88292	5832.3451	1.88340	5845.0803
$\frac{1}{2}$	1.88248	5820.4184	1.88295	5833.1406	1.88342	5845.8767
$\frac{9}{16}$	1.88251	5821.2131	1.88298	5833.9362	1.88345	5846.6732
$\frac{5}{8}$	1.88254	5822.0079	1.88301	5834.7319	1.88348	5847.4697
$\frac{11}{16}$	1.88257	5822.8028	1.88304	5835.5276	1.88351	5848.2663
$\frac{3}{4}$	1.88260	5823.5977	1.88307	5836.3234	1.88354	5849.0629
$\frac{13}{16}$	1.88263	5824.3926	1.88310	5837.1192	1.88357	5849.8596
$\frac{7}{8}$	1.88265	5825.1876	1.88313	5837.9150	1.88360	5850.6564
$\frac{15}{16}$	1.88268	5825.9827	1.88316	5838.7110	1.88363	5851.4532

# 76'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88366	5852.2500	1.88413	5865.0069	1.88461	5877.7778
1/16	1.88369	5853.0469	1.88416	5865.8047	1.88464	5878.5764
1/8	1.88372	5853.8439	1.88419	5866.6025	1.88467	5879.3751
3/16	1.88375	5854.6409	1.88422	5867.4004	1.88470	5880.1739
1/4	1.88378	5855.4379	1.88425	5868.1984	1.88472	5880.9727
5/16	1.88381	5856.2351	1.88428	5868.9963	1.88475	5881.7715
3/8	1.88384	5857.0322	1.88431	5869.7944	1.88478	5882.5704
7/16	1.88387	5857.8295	1.88434	5870.5925	1.88481	5883.3694
1/2	1.88390	5858.6267	1.88437	5871.3906	1.88484	5884.1684
9/16	1.88393	5859.4241	1.88440	5872.1888	1.88487	5884.9675
5/8	1.88396	5860.2215	1.88443	5872.9871	1.88490	5885.7666
11/16	1.88399	5861.0189	1.88446	5873.7854	1.88493	5886.5658
3/4	1.88402	5861.8164	1.88449	5874.5838	1.88496	5887.3650
13/16	1.88405	5862.6140	1.88452	5875.3822	1.88499	5888.1643
7/8	1.88408	5863.4116	1.88455	5876.1807	1.88502	5888.9637
15/16	1.88410	5864.2092	1.88458	5876.9792	1.88505	5889.7630
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88508	5890.5625	1.88555	5903.3611	1.88602	5916.1736
1/16	1.88511	5891.3620	1.88558	5904.1615	1.88605	5916.9749
1/8	1.88514	5892.1616	1.88561	5904.9619	1.88608	5917.7762
3/16	1.88517	5892.9612	1.88564	5905.7624	1.88611	5918.5775
1/4	1.88520	5893.7609	1.88567	5906.5629	1.88614	5919.3789
5/16	1.88523	5894.5606	1.88570	5907.3635	1.88617	5920.1804
3/8	1.88526	5895.3604	1.88573	5908.1642	1.88620	5920.9819
7/16	1.88528	5896.1602	1.88576	5908.9649	1.88623	5921.7834
1/2	1.88531	5896.9601	1.88579	5909.7656	1.88626	5922.5851
9/16	1.88534	5897.7600	1.88581	5910.5664	1.88629	5923.3867
5/8	1.88537	5898.5600	1.88584	5911.3673	1.88631	5924.1885
11/16	1.88540	5899.3601	1.88587	5912.1682	1.88634	5924.9903
3/4	1.88543	5900.1602	1.88590	5912.9692	1.88637	5925.7921
13/16	1.88546	5900.9603	1.88593	5913.7702	1.88640	5926.5940
7/8	1.88549	5901.7605	1.88596	5914.5713	1.88643	5927.3959
15/16	1.88552	5902.5608	1.88599	5915.3724	1.88646	5928.1979

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88649	5929.0000	1.88696	5941.8403	1.88743	5954.6944
$\frac{1}{16}$	1.88652	5929.8021	1.88699	5942.6433	1.88746	5955.4983
$\frac{1}{8}$	1.88655	5930.6043	1.88702	5943.4463	1.88749	5956.3022
$\frac{3}{16}$	1.88658	5931.4065	1.88705	5944.2494	1.88752	5957.1061
$\frac{1}{4}$	1.88661	5932.2088	1.88708	5945.0525	1.88755	5957.9102
$\frac{5}{16}$	1.88664	5933.0111	1.88711	5945.8557	1.88758	5958.7142
$\frac{3}{8}$	1.88667	5933.8135	1.88714	5946.6590	1.88761	5959.5183
$\frac{7}{16}$	1.88670	5934.6159	1.88717	5947.4623	1.88763	5960.3225
$\frac{1}{2}$	1.88673	5935.4184	1.88720	5948.2656	1.88766	5961.1267
$\frac{9}{16}$	1.88676	5936.2209	1.88722	5949.0690	1.88769	5961.9310
$\frac{5}{8}$	1.88678	5937.0235	1.88725	5949.8725	1.88772	5962.7354
$\frac{11}{16}$	1.88681	5937.8262	1.88728	5950.6760	1.88775	5963.5397
$\frac{3}{4}$	1.88684	5938.6289	1.88731	5951.4796	1.88778	5964.3442
$\frac{13}{16}$	1.88687	5939.4317	1.88734	5952.2832	1.88781	5965.1487
$\frac{7}{8}$	1.88690	5940.2345	1.88737	5953.0869	1.88784	5965.9532
$\frac{15}{16}$	1.88693	5941.0374	1.88740	5953.8907	1.88787	5966.7578
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88790	5967.5625	1.88837	5980.4444	1.88883	5993.3403
$\frac{1}{16}$	1.88793	5968.3672	1.88840	5981.2500	1.88886	5994.1467
$\frac{1}{8}$	1.88796	5969.1720	1.88843	5982.0557	1.88889	5994.9532
$\frac{3}{16}$	1.88799	5969.9768	1.88845	5982.8614	1.88892	5995.7598
$\frac{1}{4}$	1.88802	5970.7817	1.88848	5983.6671	1.88895	5996.5664
$\frac{5}{16}$	1.88804	5971.5866	1.88851	5984.4729	1.88898	5997.3731
$\frac{3}{8}$	1.88807	5972.3916	1.88854	5985.2788	1.88901	5998.1798
$\frac{7}{16}$	1.88810	5973.1966	1.88857	5986.0847	1.88904	5998.9866
$\frac{1}{2}$	1.88813	5974.0017	1.88860	5986.8906	1.88907	5999.7934
$\frac{9}{16}$	1.88816	5974.8069	1.88863	5987.6966	1.88910	6000.6003
$\frac{5}{8}$	1.88819	5975.6121	1.88866	5988.5027	1.88913	6001.4072
$\frac{11}{16}$	1.88822	5976.4173	1.88869	5989.3088	1.88916	6002.2142
$\frac{3}{4}$	1.88825	5977.2227	1.88872	5990.1150	1.88918	6003.0213
$\frac{13}{16}$	1.88828	5978.0280	1.88875	5990.9213	1.88921	6003.8284
$\frac{7}{8}$	1.88831	5978.8334	1.88878	5991.7275	1.88924	6004.6355
$\frac{15}{16}$	1.88834	5979.6389	1.88881	5992.5339	1.88927	6005.4427

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88930	6006.2500	1.88977	6019.1736	1.89023	6032.1111
1/16	1.88933	6007.0573	1.88980	6019.9818	1.89026	6032.9202
1/8	1.88936	6007.8647	1.88983	6020.7900	1.89029	6033.7298
3/16	1.88939	6008.6721	1.88986	6021.5983	1.89032	6034.5384
1/4	1.88942	6009.4796	1.88989	6022.4067	1.89035	6035.3477
5/16	1.88945	6010.2871	1.88991	6023.2151	1.89038	6036.1569
3/8	1.88948	6011.0947	1.88994	6024.0235	1.89041	6036.9663
7/16	1.88951	6011.9024	1.88997	6024.8321	1.89044	6037.7756
1/2	1.88954	6012.7101	1.89000	6025.6406	1.89047	6038.5851
9/16	1.88956	6013.5178	1.89003	6026.4492	1.89050	6039.3946
5/8	1.88959	6014.3256	1.89006	6027.2579	1.89053	6040.2041
11/16	1.88962	6015.1335	1.89009	6028.0667	1.89055	6041.0137
3/4	1.88965	6015.9414	1.89012	6028.8754	1.89058	6041.8234
13/16	1.88968	6016.7494	1.89015	6029.6843	1.89061	6042.6331
7/8	1.88971	6017.5574	1.89018	6030.4932	1.89064	6043.4428
15/16	1.88974	6018.3655	1.89021	6031.3021	1.89067	6044.2526

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89070	6045.0625	1.89117	6058.0278	1.89163	6071.0069
1/16	1.89073	6045.8724	1.89119	6058.8386	1.89166	6071.8186
1/8	1.89076	6046.6824	1.89122	6059.6494	1.89169	6072.6303
3/16	1.89079	6047.4924	1.89125	6060.4603	1.89172	6073.4421
1/4	1.89082	6048.3025	1.89128	6061.2713	1.89175	6074.2539
5/16	1.89085	6049.1127	1.89131	6062.0823	1.89178	6075.0658
3/8	1.89087	6049.9229	1.89134	6062.8933	1.89180	6075.8777
7/16	1.89090	6050.7331	1.89137	6063.7045	1.89183	6076.6897
1/2	1.89093	6051.5434	1.89140	6064.5156	1.89186	6077.5017
9/16	1.89096	6052.3538	1.89143	6065.3269	1.89189	6078.3138
5/8	1.89099	6053.1642	1.89146	6066.1381	1.89192	6079.1260
11/16	1.89102	6053.9746	1.89149	6066.9495	1.89195	6079.9382
3/4	1.89105	6054.7852	1.89151	6067.7609	1.89198	6080.7504
13/16	1.89108	6055.5957	1.89154	6068.5723	1.89201	6081.5627
7/8	1.89111	6056.4064	1.89157	6069.3838	1.89204	6082.3751
15/16	1.89114	6057.2170	1.89160	6070.1953	1.89207	6083.1875



# 78'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89209	6084.0000	1.89256	6097.0069	1.89302	6110.0278
$\frac{1}{16}$	1.89212	6084.8125	1.89259	6097.8203	1.89305	6110.8420
$\frac{1}{8}$	1.89215	6085.6251	1.89262	6098.6338	1.89308	6111.6564
$\frac{3}{16}$	1.89218	6086.4377	1.89265	6099.4473	1.89311	6112.4707
$\frac{1}{4}$	1.89221	6087.2504	1.89267	6100.2609	1.89314	6113.2852
$\frac{5}{16}$	1.89224	6088.0632	1.89270	6101.0745	1.89317	6114.0996
$\frac{3}{8}$	1.89227	6088.8760	1.89273	6101.8881	1.89320	6114.9142
$\frac{7}{16}$	1.89230	6089.6888	1.89276	6102.7019	1.89322	6115.7288
$\frac{1}{2}$	1.89233	6090.5017	1.89279	6103.5156	1.89325	6116.5434
$\frac{9}{16}$	1.89236	6091.3147	1.89282	6104.3295	1.89328	6117.3581
$\frac{5}{8}$	1.89238	6092.1277	1.89285	6105.1433	1.89331	6118.1729
$\frac{11}{16}$	1.89241	6092.9408	1.89288	6105.9573	1.89334	6118.9877
$\frac{3}{4}$	1.89244	6093.7539	1.89291	6106.7713	1.89337	6119.8025
$\frac{13}{16}$	1.89247	6094.5671	1.89293	6107.5853	1.89340	6120.6174
$\frac{7}{8}$	1.89250	6095.3803	1.89296	6108.3994	1.89343	6121.4324
$\frac{15}{16}$	1.89253	6096.1936	1.89299	6109.2136	1.89346	6122.2474

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89348	6123.0625	1.89395	6136.1111	1.89441	6149.1736
$\frac{1}{16}$	1.89351	6123.8776	1.89398	6136.9271	1.89444	6149.9905
$\frac{1}{8}$	1.89354	6124.6928	1.89400	6137.7432	1.89447	6150.8074
$\frac{3}{16}$	1.89357	6125.5081	1.89403	6138.5593	1.89449	6151.6244
$\frac{1}{4}$	1.89360	6126.3234	1.89406	6139.3754	1.89452	6152.4414
$\frac{5}{16}$	1.89363	6127.1387	1.89409	6140.1917	1.89455	6153.2585
$\frac{3}{8}$	1.89366	6127.9541	1.89412	6141.0079	1.89458	6154.0756
$\frac{7}{16}$	1.89369	6128.7696	1.89415	6141.8242	1.89461	6154.8928
$\frac{1}{2}$	1.89372	6129.5851	1.89418	6142.6406	1.89464	6155.7101
$\frac{9}{16}$	1.89374	6130.4006	1.89421	6143.4571	1.89467	6156.5274
$\frac{5}{8}$	1.89377	6131.2163	1.89424	6144.2735	1.89470	6157.3447
$\frac{11}{16}$	1.89380	6132.0319	1.89426	6145.0901	1.89473	6158.1621
$\frac{3}{4}$	1.89383	6132.8477	1.89429	6145.9067	1.89475	6158.9796
$\frac{13}{16}$	1.89386	6133.6634	1.89432	6146.7233	1.89478	6159.7971
$\frac{7}{8}$	1.89389	6134.4793	1.89435	6147.5400	1.89481	6160.6147
$\frac{15}{16}$	1.89392	6135.2952	1.89438	6148.3568	1.89484	6161.4323

# 78'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89487	6162.2500	1.89533	6175.3403	1.89579	6188.4444
1/16	1.89490	6163.0677	1.89536	6176.1589	1.89582	6189.2639
1/8	1.89493	6163.8855	1.89539	6176.9775	1.89585	6190.0834
3/16	1.89496	6164.7034	1.89542	6177.7963	1.89588	6190.9030
1/4	1.89498	6165.5213	1.89545	6178.6150	1.89591	6191.7227
5/16	1.89501	6166.3392	1.89547	6179.4338	1.89593	6192.5423
3/8	1.89504	6167.1572	1.89550	6180.2527	1.89596	6193.3621
7/16	1.89507	6167.9753	1.89553	6181.0716	1.89599	6194.1819
1/2	1.89510	6168.7934	1.89556	6181.8906	1.89602	6195.0017
9/16	1.89513	6169.6116	1.89559	6182.7097	1.89605	6195.8216
5/8	1.89516	6170.4298	1.89562	6183.5288	1.89608	6196.6416
11/16	1.89519	6171.2481	1.89565	6184.3479	1.89611	6197.4616
3/4	1.89522	6172.0664	1.89568	6185.1671	1.89614	6198.2817
13/16	1.89524	6172.8848	1.89570	6185.9864	1.89616	6199.1018
7/8	1.89527	6173.7032	1.89573	6186.8057	1.89619	6199.9220
15/16	1.89530	6174.5217	1.89576	6187.6250	1.89622	6200.7422

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89625	6201.5625	1.89671	6214.6944	1.89717	6227.8403
1/16	1.89628	6202.3828	1.89674	6215.5157	1.89720	6228.6624
1/8	1.89631	6203.2032	1.89677	6216.3369	1.89723	6229.4845
3/16	1.89634	6204.0237	1.89680	6217.1582	1.89725	6230.3067
1/4	1.89637	6204.8442	1.89682	6217.9796	1.89728	6231.1289
5/16	1.89639	6205.6647	1.89685	6218.8010	1.89731	6231.9512
3/8	1.89642	6206.4854	1.89688	6219.6225	1.89734	6232.7735
7/16	1.89645	6207.3060	1.89691	6220.4440	1.89737	6233.5959
1/2	1.89648	6208.1267	1.89694	6221.2656	1.89740	6234.4184
9/16	1.89651	6208.9475	1.89697	6222.0873	1.89743	6235.2409
5/8	1.89654	6209.7683	1.89700	6222.9090	1.89746	6236.0635
11/16	1.89657	6210.5892	1.89703	6223.7307	1.89748	6236.8861
3/4	1.89660	6211.4102	1.89705	6224.5525	1.89751	6237.7088
13/16	1.89662	6212.2311	1.89708	6225.3744	1.89754	6238.5315
7/8	1.89665	6213.0522	1.89711	6226.1963	1.89757	6239.3543
15/16	1.89668	6213.8733	1.89714	6227.0183	1.89760	6240.1771

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89763	6241.0000	1.89808	6254.1736	1.89854	6267.3611
$\frac{1}{16}$	1.89766	6241.8229	1.89811	6254.9974	1.89857	6268.1858
$\frac{1}{8}$	1.89768	6242.6459	1.89814	6255.8213	1.89860	6269.0105
$\frac{3}{16}$	1.89771	6243.4690	1.89817	6256.6452	1.89863	6269.8353
$\frac{1}{4}$	1.89774	6244.2921	1.89820	6257.4692	1.89866	6270.6602
$\frac{5}{16}$	1.89777	6245.1153	1.89823	6258.2932	1.89869	6271.4851
$\frac{3}{8}$	1.89780	6245.9385	1.89826	6259.1173	1.89871	6272.3100
$\frac{7}{16}$	1.89783	6246.7617	1.89829	6259.9414	1.89874	6273.1350
$\frac{1}{2}$	1.89786	6247.5851	1.89831	6260.7656	1.89877	6273.9601
$\frac{9}{16}$	1.89788	6248.4084	1.89834	6261.5899	1.89880	6274.7852
$\frac{5}{8}$	1.89791	6249.2319	1.89837	6262.4142	1.89883	6275.6104
$\frac{11}{16}$	1.89794	6250.0554	1.89840	6263.2385	1.89886	6276.4356
$\frac{3}{4}$	1.89797	6250.8789	1.89843	6264.0629	1.89889	6277.2609
$\frac{13}{16}$	1.89800	6251.7025	1.89846	6264.8874	1.89891	6278.0862
$\frac{7}{8}$	1.89803	6252.5262	1.89849	6265.7119	1.89894	6278.9116
$\frac{15}{16}$	1.89806	6253.3499	1.89851	6266.5365	1.89897	6279.7370

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89900	6280.5625	1.89946	6293.7778	1.89991	6307.0069
$\frac{1}{16}$	1.89903	6281.3880	1.89948	6294.6042	1.89994	6307.8342
$\frac{1}{8}$	1.89906	6282.2137	1.89951	6295.4307	1.89997	6308.6616
$\frac{3}{16}$	1.89908	6283.0393	1.89954	6296.2572	1.90000	6309.4890
$\frac{1}{4}$	1.89911	6283.8650	1.89957	6297.0838	1.90003	6310.3164
$\frac{5}{16}$	1.89914	6284.6908	1.89960	6297.9104	1.90005	6311.1439
$\frac{3}{8}$	1.89917	6285.5166	1.89963	6298.7371	1.90008	6311.9715
$\frac{7}{16}$	1.89920	6286.3425	1.89966	6299.5638	1.90011	6312.7991
$\frac{1}{2}$	1.89923	6287.1684	1.89968	6300.3906	1.90014	6313.6267
$\frac{9}{16}$	1.89926	6287.9944	1.89971	6301.2175	1.90017	6314.4545
$\frac{5}{8}$	1.89928	6288.8204	1.89974	6302.0444	1.90020	6315.2822
$\frac{11}{16}$	1.89931	6289.6465	1.89977	6302.8713	1.90022	6316.1101
$\frac{3}{4}$	1.89934	6290.4727	1.89980	6303.6984	1.90025	6316.9379
$\frac{13}{16}$	1.89937	6291.2989	1.89983	6304.5254	1.90028	6317.7659
$\frac{7}{8}$	1.89940	6292.1251	1.89985	6305.3525	1.90031	6318.5939
$\frac{15}{16}$	1.89943	6292.9514	1.89988	6306.1797	1.90034	6319.4219

# 79'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90037	6320.2500	1.90082	6333.5069	1.90128	6346.7778
$\frac{1}{16}$	1.90040	6321.0782	1.90085	6334.3360	1.90131	6347.6077
$\frac{1}{8}$	1.90042	6321.9064	1.90088	6335.1650	1.90133	6348.4376
$\frac{3}{16}$	1.90045	6322.7346	1.90091	6335.9942	1.90136	6349.2676
$\frac{1}{4}$	1.90048	6323.5629	1.90094	6336.8234	1.90139	6350.0977
$\frac{5}{16}$	1.90051	6324.3913	1.90096	6337.6526	1.90142	6350.9278
$\frac{3}{8}$	1.90054	6325.2197	1.90099	6338.4819	1.90145	6351.7579
$\frac{7}{16}$	1.90057	6326.0482	1.90102	6339.3112	1.90148	6352.5881
$\frac{1}{2}$	1.90059	6326.8767	1.90105	6340.1406	1.90150	6353.4184
$\frac{9}{16}$	1.90062	6327.7053	1.90108	6340.9701	1.90153	6354.2487
$\frac{5}{8}$	1.90065	6328.5340	1.90111	6341.7996	1.90156	6355.0791
$1\frac{1}{16}$	1.90068	6329.3627	1.90113	6342.6292	1.90159	6355.9095
$\frac{3}{4}$	1.90071	6330.1914	1.90116	6343.4588	1.90162	6356.7400
$1\frac{3}{16}$	1.90074	6331.0202	1.90119	6344.2884	1.90165	6357.5706
$\frac{7}{8}$	1.90077	6331.8491	1.90122	6345.1182	1.90167	6358.4012
$1\frac{5}{16}$	1.90079	6332.6780	1.90125	6345.9479	1.90170	6359.2318

Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90173	6360.0625	1.90218	6373.3611	1.90264	6386.6736
$\frac{1}{16}$	1.90176	6360.8923	1.90221	6374.1927	1.90267	6387.5061
$\frac{1}{8}$	1.90179	6361.7241	1.90224	6375.0244	1.90269	6388.3387
$\frac{3}{16}$	1.90182	6362.5549	1.90227	6375.8561	1.90272	6389.1713
$\frac{1}{4}$	1.90184	6363.3859	1.90230	6376.6879	1.90275	6390.0039
$\frac{5}{16}$	1.90187	6364.2168	1.90233	6377.5198	1.90278	6390.8366
$\frac{3}{8}$	1.90190	6365.0479	1.90235	6378.3517	1.90281	6391.6694
$\frac{7}{16}$	1.90193	6365.8789	1.90238	6379.1836	1.90284	6392.5022
$\frac{1}{2}$	1.90196	6366.7101	1.90241	6380.0156	1.90286	6393.3351
$\frac{9}{16}$	1.90199	6367.5418	1.90244	6380.8477	1.90289	6394.1680
$\frac{5}{8}$	1.90201	6368.3725	1.90247	6381.6798	1.90292	6395.0010
$1\frac{1}{16}$	1.90204	6369.2038	1.90250	6382.5120	1.90295	6395.8340
$\frac{3}{4}$	1.90207	6370.0352	1.90252	6383.3442	1.90298	6396.6671
$1\frac{3}{16}$	1.90210	6370.8666	1.90255	6384.1765	1.90301	6397.5002
$\frac{7}{8}$	1.90213	6371.6980	1.90258	6385.0088	1.90303	6398.3334
$1\frac{5}{16}$	1.90216	6372.5295	1.90261	6385.8412	1.90306	6399.1667

# 80'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90309	6400.0000	1.90354	6413.3403	1.90399	6426.6944
1/16	1.90312	6400.8334	1.90357	6414.1745	1.90402	6427.5295
1/8	1.90315	6401.6668	1.90360	6415.0088	1.90405	6428.3647
3/16	1.90317	6402.5002	1.90363	6415.8431	1.90408	6429.1999
1/4	1.90320	6403.3338	1.90366	6416.6775	1.90411	6430.0352
5/16	1.90323	6404.1673	1.90368	6417.5120	1.90413	6430.8705
3/8	1.90326	6405.0010	1.90371	6418.3465	1.90416	6431.7058
7/16	1.90329	6405.8347	1.90374	6419.1810	1.90419	6432.5413
1/2	1.90332	6406.6684	1.90377	6420.0156	1.90422	6433.3767
9/16	1.90334	6407.5022	1.90380	6420.8503	1.90425	6434.2123
5/8	1.90337	6408.3360	1.90382	6421.6850	1.90428	6435.0479
11/16	1.90340	6409.1699	1.90385	6422.5198	1.90430	6435.8835
3/4	1.90343	6410.0039	1.90388	6423.3546	1.90433	6436.7192
13/16	1.90346	6410.8379	1.90391	6424.1895	1.90436	6437.5549
7/8	1.90349	6411.6720	1.90394	6425.0244	1.90439	6438.3907
15/16	1.90351	6412.5061	1.90397	6425.8594	1.90442	6439.2266

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90445	6440.0625	1.90490	6453.4444	1.90535	6466.8403
1/16	1.90447	6440.8985	1.90492	6454.2813	1.90537	6467.6780
1/8	1.90450	6441.7345	1.90495	6455.1182	1.90540	6468.5157
3/16	1.90453	6442.5706	1.90498	6455.9551	1.90543	6469.3535
1/4	1.90456	6443.4067	1.90501	6456.7921	1.90546	6470.1914
5/16	1.90459	6444.2429	1.90504	6457.6292	1.90549	6471.0293
3/8	1.90461	6445.0791	1.90506	6458.4663	1.90551	6471.8673
7/16	1.90464	6445.9154	1.90509	6459.3034	1.90554	6472.7053
1/2	1.90467	6446.7517	1.90512	6460.1406	1.90557	6473.5434
9/16	1.90470	6447.5881	1.90515	6460.9779	1.90560	6474.3815
5/8	1.90473	6448.4246	1.90518	6461.8152	1.90563	6475.2197
11/16	1.90475	6449.2611	1.90521	6462.6526	1.90566	6476.0580
3/4	1.90478	6450.0977	1.90523	6463.4900	1.90568	6476.8963
13/16	1.90481	6450.9343	1.90526	6464.3275	1.90571	6477.7346
7/8	1.90484	6451.7709	1.90529	6465.1650	1.90574	6478.5730
15/16	1.90487	6452.6077	1.90532	6466.0026	1.90577	6479.4115

# 80'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90580	6480.2500	1.90625	6493.6736	1.90669	6507.1111
1/16	1.90582	6481.0886	1.90627	6494.5130	1.90672	6507.9514
1/8	1.90585	6481.9272	1.90630	6495.3525	1.90675	6508.7918
3/16	1.90588	6482.7659	1.90633	6496.1921	1.90678	6509.6322
1/4	1.90591	6483.6046	1.90636	6497.0317	1.90681	6510.4727
5/16	1.90594	6484.4434	1.90639	6497.8713	1.90683	6511.3132
3/8	1.90596	6485.2822	1.90641	6498.7110	1.90686	6512.1538
7/16	1.90599	6486.1211	1.90644	6499.5508	1.90689	6512.9944
1/2	1.90602	6486.9601	1.90647	6500.3906	1.90692	6513.8351
9/16	1.90605	6487.7991	1.90650	6501.2305	1.90695	6514.6758
5/8	1.90608	6488.6381	1.90653	6502.0704	1.90697	6515.5166
11/16	1.90610	6489.4772	1.90655	6502.9104	1.90700	6516.3574
3/4	1.90613	6490.3164	1.90658	6503.7504	1.90703	6517.1984
13/16	1.90616	6491.1556	1.90661	6504.5905	1.90706	6518.0393
7/8	1.90619	6491.9949	1.90664	6505.4307	1.90709	6518.8803
15/16	1.90622	6492.8342	1.90667	6506.2709	1.90711	6519.7214

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90714	6520.5625	1.90759	6534.0278	1.90804	6547.5069
1/16	1.90717	6521.4037	1.90762	6534.8698	1.90807	6548.3499
1/8	1.90720	6522.2449	1.90765	6535.7119	1.90809	6549.1928
3/16	1.90723	6523.0862	1.90767	6536.5541	1.90812	6550.0358
1/4	1.90725	6523.9275	1.90770	6537.3963	1.90815	6550.8789
5/16	1.90728	6524.7689	1.90773	6538.2385	1.90818	6551.7220
3/8	1.90731	6525.6104	1.90776	6539.0808	1.90821	6552.5652
7/16	1.90734	6526.4519	1.90779	6539.9232	1.90823	6553.4084
1/2	1.90737	6527.2934	1.90781	6540.7656	1.90826	6554.2517
9/16	1.90739	6528.1350	1.90784	6541.6081	1.90829	6555.0951
5/8	1.90742	6528.9767	1.90787	6542.4506	1.90832	6555.9385
11/16	1.90745	6529.8184	1.90790	6543.2932	1.90835	6556.7819
3/4	1.90748	6530.6602	1.90793	6544.1359	1.90837	6557.6254
13/16	1.90751	6531.5020	1.90795	6544.9785	1.90840	6558.4690
7/8	1.90753	6532.3439	1.90798	6545.8213	1.90843	6559.3126
15/16	1.90756	6533.1858	1.90801	6546.6641	1.90846	6560.1563

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88081	5776.0000	1.88129	5788.6736	1.88176	5801.3611
$\frac{1}{16}$	1.88084	5776.7917	1.88132	5789.4662	1.88179	5802.1545
$\frac{1}{8}$	1.88087	5777.5834	1.88135	5790.2588	1.88182	5802.9480
$\frac{3}{16}$	1.88090	5778.3752	1.88138	5791.0515	1.88185	5803.7416
$\frac{1}{4}$	1.88093	5779.1671	1.88141	5791.8442	1.88188	5804.5352
$\frac{5}{16}$	1.88096	5779.9590	1.88144	5792.6370	1.88191	5805.3288
$\frac{3}{8}$	1.88099	5780.7510	1.88147	5793.4298	1.88194	5806.1225
$\frac{7}{16}$	1.88102	5781.5430	1.88150	5794.2227	1.88197	5806.9163
$\frac{1}{2}$	1.88105	5782.3351	1.88153	5795.0156	1.88200	5807.7101
$\frac{9}{16}$	1.88108	5783.1272	1.88156	5795.8086	1.88203	5808.5039
$\frac{5}{8}$	1.88111	5783.9194	1.88159	5796.6017	1.88206	5809.2979
$\frac{11}{16}$	1.88114	5784.7116	1.88162	5797.3948	1.88209	5810.0918
$\frac{3}{4}$	1.88117	5785.5039	1.88165	5798.1879	1.88212	5810.8859
$\frac{13}{16}$	1.88120	5786.2963	1.88168	5798.9811	1.88215	5811.6799
$\frac{7}{8}$	1.88123	5787.0887	1.88171	5799.7744	1.88218	5812.4741
$\frac{15}{16}$	1.88126	5787.8811	1.88174	5800.5677	1.88221	5813.2683
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88224	5814.0625	1.88271	5826.7778	1.88319	5839.5069
$\frac{1}{16}$	1.88227	5814.8568	1.88274	5827.5729	1.88322	5840.3030
$\frac{1}{8}$	1.88230	5815.6512	1.88277	5828.3682	1.88325	5841.0991
$\frac{3}{16}$	1.88233	5816.4456	1.88280	5829.1634	1.88328	5841.8952
$\frac{1}{4}$	1.88236	5817.2400	1.88283	5829.9588	1.88331	5842.6914
$\frac{5}{16}$	1.88239	5818.0345	1.88286	5830.7542	1.88334	5843.4877
$\frac{3}{8}$	1.88242	5818.8291	1.88289	5831.5496	1.88337	5844.2840
$\frac{7}{16}$	1.88245	5819.6237	1.88292	5832.3451	1.88340	5845.0803
$\frac{1}{2}$	1.88248	5820.4184	1.88295	5833.1406	1.88342	5845.8767
$\frac{9}{16}$	1.88251	5821.2131	1.88298	5833.9362	1.88345	5846.6732
$\frac{5}{8}$	1.88254	5822.0079	1.88301	5834.7319	1.88348	5847.4697
$\frac{11}{16}$	1.88257	5822.8028	1.88304	5835.5276	1.88351	5848.2663
$\frac{3}{4}$	1.88260	5823.5977	1.88307	5836.3234	1.88354	5849.0629
$\frac{13}{16}$	1.88263	5824.3926	1.88310	5837.1192	1.88357	5849.8596
$\frac{7}{8}$	1.88265	5825.1876	1.88313	5837.9150	1.88360	5850.6564
$\frac{15}{16}$	1.88268	5825.9827	1.88316	5838.7110	1.88363	5851.4532

# 76'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88366	5852.2500	1.88413	5865.0069	1.88461	5877.7778
$\frac{1}{16}$	1.88369	5853.0469	1.88416	5865.8047	1.88464	5878.5764
$\frac{1}{8}$	1.88372	5853.8439	1.88419	5866.6025	1.88467	5879.3751
$\frac{3}{16}$	1.88375	5854.6409	1.88422	5867.4004	1.88470	5880.1739
$\frac{1}{4}$	1.88378	5855.4379	1.88425	5868.1984	1.88472	5880.9727
$\frac{5}{16}$	1.88381	5856.2351	1.88428	5868.9963	1.88475	5881.7715
$\frac{3}{8}$	1.88384	5857.0322	1.88431	5869.7944	1.88478	5882.5704
$\frac{7}{16}$	1.88387	5857.8295	1.88434	5870.5925	1.88481	5883.3694
$\frac{1}{2}$	1.88390	5858.6267	1.88437	5871.3906	1.88484	5884.1684
$\frac{9}{16}$	1.88393	5859.4241	1.88440	5872.1888	1.88487	5884.9675
$\frac{5}{8}$	1.88396	5860.2215	1.88443	5872.9871	1.88490	5885.7666
$\frac{11}{16}$	1.88399	5861.0189	1.88446	5873.7854	1.88493	5886.5658
$\frac{3}{4}$	1.88402	5861.8164	1.88449	5874.5838	1.88496	5887.3650
$\frac{13}{16}$	1.88405	5862.6140	1.88452	5875.3822	1.88499	5888.1643
$\frac{7}{8}$	1.88408	5863.4116	1.88455	5876.1807	1.88502	5888.9637
$\frac{15}{16}$	1.88410	5864.2092	1.88458	5876.9792	1.88505	5889.7630
Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88508	5890.5625	1.88555	5903.3611	1.88602	5916.1736
$\frac{1}{16}$	1.88511	5891.3620	1.88558	5904.1615	1.88605	5916.9749
$\frac{1}{8}$	1.88514	5892.1616	1.88561	5904.9619	1.88608	5917.7762
$\frac{3}{16}$	1.88517	5892.9612	1.88564	5905.7624	1.88611	5918.5775
$\frac{1}{4}$	1.88520	5893.7609	1.88567	5906.5629	1.88614	5919.3789
$\frac{5}{16}$	1.88523	5894.5606	1.88570	5907.3635	1.88617	5920.1804
$\frac{3}{8}$	1.88526	5895.3604	1.88573	5908.1642	1.88620	5920.9819
$\frac{7}{16}$	1.88528	5896.1602	1.88576	5908.9649	1.88623	5921.7834
$\frac{1}{2}$	1.88531	5896.9601	1.88579	5909.7656	1.88626	5922.5851
$\frac{9}{16}$	1.88534	5897.7600	1.88581	5910.5664	1.88629	5923.3867
$\frac{5}{8}$	1.88537	5898.5600	1.88584	5911.3673	1.88631	5924.1885
$\frac{11}{16}$	1.88540	5899.3601	1.88587	5912.1682	1.88634	5924.9903
$\frac{3}{4}$	1.88543	5900.1602	1.88590	5912.9692	1.88637	5925.7921
$\frac{13}{16}$	1.88546	5900.9603	1.88593	5913.7702	1.88640	5926.5940
$\frac{7}{8}$	1.88549	5901.7605	1.88596	5914.5713	1.88643	5927.3959
$\frac{15}{16}$	1.88552	5902.5608	1.88599	5915.3724	1.88646	5928.1979



Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88649	5929.0000	1.88696	5941.8403	1.88743	5954.6944
$\frac{1}{16}$	1.88652	5929.8021	1.88699	5942.6433	1.88746	5955.4983
$\frac{1}{8}$	1.88655	5930.6043	1.88702	5943.4463	1.88749	5956.3022
$\frac{3}{16}$	1.88658	5931.4065	1.88705	5944.2494	1.88752	5957.1061
$\frac{1}{4}$	1.88661	5932.2088	1.88708	5945.0525	1.88755	5957.9102
$\frac{5}{16}$	1.88664	5933.0111	1.88711	5945.8557	1.88758	5958.7142
$\frac{3}{8}$	1.88667	5933.8135	1.88714	5946.6590	1.88761	5959.5183
$\frac{7}{16}$	1.88670	5934.6159	1.88717	5947.4623	1.88763	5960.3225
$\frac{1}{2}$	1.88673	5935.4184	1.88720	5948.2656	1.88766	5961.1267
$\frac{9}{16}$	1.88676	5936.2209	1.88722	5949.0690	1.88769	5961.9310
$\frac{5}{8}$	1.88678	5937.0235	1.88725	5949.8725	1.88772	5962.7354
$\frac{11}{16}$	1.88681	5937.8262	1.88728	5950.6760	1.88775	5963.5397
$\frac{3}{4}$	1.88684	5938.6289	1.88731	5951.4796	1.88778	5964.3442
$\frac{13}{16}$	1.88687	5939.4317	1.88734	5952.2832	1.88781	5965.1487
$\frac{7}{8}$	1.88690	5940.2345	1.88737	5953.0869	1.88784	5965.9532
$\frac{15}{16}$	1.88693	5941.0374	1.88740	5953.8907	1.88787	5966.7578
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88790	5967.5625	1.88837	5980.4444	1.88883	5993.3403
$\frac{1}{16}$	1.88793	5968.3672	1.88840	5981.2500	1.88886	5994.1467
$\frac{1}{8}$	1.88796	5969.1720	1.88843	5982.0557	1.88889	5994.9532
$\frac{3}{16}$	1.88799	5969.9768	1.88845	5982.8614	1.88892	5995.7598
$\frac{1}{4}$	1.88802	5970.7817	1.88848	5983.6671	1.88895	5996.5664
$\frac{5}{16}$	1.88804	5971.5866	1.88851	5984.4729	1.88898	5997.3731
$\frac{3}{8}$	1.88807	5972.3916	1.88854	5985.2788	1.88901	5998.1798
$\frac{7}{16}$	1.88810	5973.1966	1.88857	5986.0847	1.88904	5998.9866
$\frac{1}{2}$	1.88813	5974.0017	1.88860	5986.8906	1.88907	5999.7934
$\frac{9}{16}$	1.88816	5974.8069	1.88863	5987.6966	1.88910	6000.6003
$\frac{5}{8}$	1.88819	5975.6121	1.88866	5988.5027	1.88913	6001.4072
$\frac{11}{16}$	1.88822	5976.4173	1.88869	5989.3088	1.88916	6002.2142
$\frac{3}{4}$	1.88825	5977.2227	1.88872	5990.1150	1.88918	6003.0213
$\frac{13}{16}$	1.88828	5978.0280	1.88875	5990.9213	1.88921	6003.8284
$\frac{7}{8}$	1.88831	5978.8334	1.88878	5991.7275	1.88924	6004.6355
$\frac{15}{16}$	1.88834	5979.6389	1.88881	5992.5339	1.88927	6005.4427

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.88930	6006.2500	1.88977	6019.1736	1.89023	6032.1111
$\frac{1}{16}$	1.88933	6007.0573	1.88980	6019.9818	1.89026	6032.9202
$\frac{1}{8}$	1.88936	6007.8647	1.88983	6020.7900	1.89029	6033.7298
$\frac{3}{16}$	1.88939	6008.6721	1.88986	6021.5983	1.89032	6034.5384
$\frac{1}{4}$	1.88942	6009.4796	1.88989	6022.4067	1.89035	6035.3477
$\frac{5}{16}$	1.88945	6010.2871	1.88991	6023.2151	1.89038	6036.1569
$\frac{3}{8}$	1.88948	6011.0947	1.88994	6024.0235	1.89041	6036.9663
$\frac{7}{16}$	1.88951	6011.9024	1.88997	6024.8321	1.89044	6037.7756
$\frac{1}{2}$	1.88954	6012.7101	1.89000	6025.6406	1.89047	6038.5851
$\frac{9}{16}$	1.88956	6013.5178	1.89003	6026.4492	1.89050	6039.3946
$\frac{5}{8}$	1.88959	6014.3256	1.89006	6027.2579	1.89053	6040.2041
$1\frac{1}{16}$	1.88962	6015.1335	1.89009	6028.0667	1.89055	6041.0137
$\frac{3}{4}$	1.88965	6015.9414	1.89012	6028.8754	1.89058	6041.8234
$1\frac{3}{16}$	1.88968	6016.7494	1.89015	6029.6843	1.89061	6042.6331
$\frac{7}{8}$	1.88971	6017.5574	1.89018	6030.4932	1.89064	6043.4428
$1\frac{5}{16}$	1.88974	6018.3655	1.89021	6031.3021	1.89067	6044.2526

Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89070	6045.0625	1.89117	6058.0278	1.89163	6071.0069
$\frac{1}{16}$	1.89073	6045.8724	1.89119	6058.8386	1.89166	6071.8186
$\frac{1}{8}$	1.89076	6046.6824	1.89122	6059.6494	1.89169	6072.6303
$\frac{3}{16}$	1.89079	6047.4924	1.89125	6060.4603	1.89172	6073.4421
$\frac{1}{4}$	1.89082	6048.3025	1.89128	6061.2713	1.89175	6074.2539
$\frac{5}{16}$	1.89085	6049.1127	1.89131	6062.0823	1.89178	6075.0658
$\frac{3}{8}$	1.89087	6049.9229	1.89134	6062.8933	1.89180	6075.8777
$\frac{7}{16}$	1.89090	6050.7331	1.89137	6063.7045	1.89183	6076.6897
$\frac{1}{2}$	1.89093	6051.5434	1.89140	6064.5156	1.89186	6077.5017
$\frac{9}{16}$	1.89096	6052.3538	1.89143	6065.3269	1.89189	6078.3138
$\frac{5}{8}$	1.89099	6053.1642	1.89146	6066.1381	1.89192	6079.1260
$1\frac{1}{16}$	1.89102	6053.9746	1.89149	6066.9495	1.89195	6079.9382
$\frac{3}{4}$	1.89105	6054.7852	1.89151	6067.7609	1.89198	6080.7504
$1\frac{3}{16}$	1.89108	6055.5957	1.89154	6068.5723	1.89201	6081.5627
$\frac{7}{8}$	1.89111	6056.4064	1.89157	6069.3838	1.89204	6082.3751
$1\frac{5}{16}$	1.89114	6057.2170	1.89160	6070.1953	1.89207	6083.1875

# 78'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89209	6084.0000	1.89256	6097.0069	1.89302	6110.0278
1/16	1.89212	6084.8125	1.89259	6097.8203	1.89305	6110.8420
1/8	1.89215	6085.6251	1.89262	6098.6338	1.89308	6111.6564
3/16	1.89218	6086.4377	1.89265	6099.4473	1.89311	6112.4707
1/4	1.89221	6087.2504	1.89267	6100.2609	1.89314	6113.2852
5/16	1.89224	6088.0632	1.89270	6101.0745	1.89317	6114.0996
3/8	1.89227	6088.8760	1.89273	6101.8881	1.89320	6114.9142
7/16	1.89230	6089.6888	1.89276	6102.7019	1.89322	6115.7288
1/2	1.89233	6090.5017	1.89279	6103.5156	1.89325	6116.5434
9/16	1.89236	6091.3147	1.89282	6104.3295	1.89328	6117.3581
5/8	1.89238	6092.1277	1.89285	6105.1433	1.89331	6118.1729
11/16	1.89241	6092.9408	1.89288	6105.9573	1.89334	6118.9877
3/4	1.89244	6093.7539	1.89291	6106.7713	1.89337	6119.8025
13/16	1.89247	6094.5671	1.89293	6107.5853	1.89340	6120.6174
7/8	1.89250	6095.3803	1.89296	6108.3994	1.89343	6121.4324
15/16	1.89253	6096.1936	1.89299	6109.2136	1.89346	6122.2474

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89348	6123.0625	1.89395	6136.1111	1.89441	6149.1736
1/16	1.89351	6123.8776	1.89398	6136.9271	1.89444	6149.9905
1/8	1.89354	6124.6928	1.89400	6137.7432	1.89447	6150.8074
3/16	1.89357	6125.5081	1.89403	6138.5593	1.89449	6151.6244
1/4	1.89360	6126.3234	1.89406	6139.3754	1.89452	6152.4414
5/16	1.89363	6127.1387	1.89409	6140.1917	1.89455	6153.2585
3/8	1.89366	6127.9541	1.89412	6141.0079	1.89458	6154.0756
7/16	1.89369	6128.7696	1.89415	6141.8242	1.89461	6154.8928
1/2	1.89372	6129.5851	1.89418	6142.6406	1.89464	6155.7101
9/16	1.89374	6130.4006	1.89421	6143.4571	1.89467	6156.5274
5/8	1.89377	6131.2163	1.89424	6144.2735	1.89470	6157.3447
11/16	1.89380	6132.0319	1.89426	6145.0901	1.89473	6158.1621
3/4	1.89383	6132.8477	1.89429	6145.9067	1.89475	6158.9796
13/16	1.89386	6133.6634	1.89432	6146.7233	1.89478	6159.7971
7/8	1.89389	6134.4793	1.89435	6147.5400	1.89481	6160.6147
15/16	1.89392	6135.2952	1.89438	6148.3568	1.89484	6161.4323

# 78'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89487	6162.2500	1.89533	6175.3403	1.89579	6188.4444
1/16	1.89490	6163.0677	1.89536	6176.1589	1.89582	6189.2639
1/8	1.89493	6163.8855	1.89539	6176.9775	1.89585	6190.0834
3/16	1.89496	6164.7034	1.89542	6177.7963	1.89588	6190.9030
1/4	1.89498	6165.5213	1.89545	6178.6150	1.89591	6191.7227
5/16	1.89501	6166.3392	1.89547	6179.4338	1.89593	6192.5423
3/8	1.89504	6167.1572	1.89550	6180.2527	1.89596	6193.3621
7/16	1.89507	6167.9753	1.89553	6181.0716	1.89599	6194.1819
1/2	1.89510	6168.7934	1.89556	6181.8906	1.89602	6195.0017
9/16	1.89513	6169.6116	1.89559	6182.7097	1.89605	6195.8216
5/8	1.89516	6170.4298	1.89562	6183.5288	1.89608	6196.6416
11/16	1.89519	6171.2481	1.89565	6184.3479	1.89611	6197.4616
3/4	1.89522	6172.0664	1.89568	6185.1671	1.89614	6198.2817
13/16	1.89524	6172.8848	1.89570	6185.9864	1.89616	6199.1018
7/8	1.89527	6173.7032	1.89573	6186.8057	1.89619	6199.9220
15/16	1.89530	6174.5217	1.89576	6187.6250	1.89622	6200.7422

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89625	6201.5625	1.89671	6214.6944	1.89717	6227.8403
1/16	1.89628	6202.3828	1.89674	6215.5157	1.89720	6228.6624
1/8	1.89631	6203.2032	1.89677	6216.3369	1.89723	6229.4845
3/16	1.89634	6204.0237	1.89680	6217.1582	1.89725	6230.3067
1/4	1.89637	6204.8442	1.89682	6217.9796	1.89728	6231.1289
5/16	1.89639	6205.6647	1.89685	6218.8010	1.89731	6231.9512
3/8	1.89642	6206.4854	1.89688	6219.6225	1.89734	6232.7735
7/16	1.89645	6207.3060	1.89691	6220.4440	1.89737	6233.5959
1/2	1.89648	6208.1267	1.89694	6221.2656	1.89740	6234.4184
9/16	1.89651	6208.9475	1.89697	6222.0873	1.89743	6235.2409
5/8	1.89654	6209.7683	1.89700	6222.9090	1.89746	6236.0635
11/16	1.89657	6210.5892	1.89703	6223.7307	1.89748	6236.8861
3/4	1.89660	6211.4102	1.89705	6224.5525	1.89751	6237.7088
13/16	1.89662	6212.2311	1.89708	6225.3744	1.89754	6238.5315
7/8	1.89665	6213.0522	1.89711	6226.1963	1.89757	6239.3543
15/16	1.89668	6213.8733	1.89714	6227.0183	1.89760	6240.1771

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89763	6241.0000	1.89808	6254.1736	1.89854	6267.3611
$\frac{1}{16}$	1.89766	6241.8229	1.89811	6254.9974	1.89857	6268.1858
$\frac{1}{8}$	1.89768	6242.6459	1.89814	6255.8213	1.89860	6269.0105
$\frac{3}{16}$	1.89771	6243.4690	1.89817	6256.6452	1.89863	6269.8353
$\frac{1}{4}$	1.89774	6244.2921	1.89820	6257.4692	1.89866	6270.6602
$\frac{5}{16}$	1.89777	6245.1153	1.89823	6258.2932	1.89869	6271.4851
$\frac{3}{8}$	1.89780	6245.9385	1.89826	6259.1173	1.89871	6272.3100
$\frac{7}{16}$	1.89783	6246.7617	1.89829	6259.9414	1.89874	6273.1350
$\frac{1}{2}$	1.89786	6247.5851	1.89831	6260.7656	1.89877	6273.9601
$\frac{9}{16}$	1.89788	6248.4084	1.89834	6261.5899	1.89880	6274.7852
$\frac{5}{8}$	1.89791	6249.2319	1.89837	6262.4142	1.89883	6275.6104
$\frac{11}{16}$	1.89794	6250.0554	1.89840	6263.2385	1.89886	6276.4356
$\frac{3}{4}$	1.89797	6250.8789	1.89843	6264.0629	1.89889	6277.2609
$\frac{13}{16}$	1.89800	6251.7025	1.89846	6264.8874	1.89891	6278.0862
$\frac{7}{8}$	1.89803	6252.5262	1.89849	6265.7119	1.89894	6278.9116
$\frac{15}{16}$	1.89806	6253.3499	1.89851	6266.5365	1.89897	6279.7370

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.89900	6260.5625	1.89946	6293.7778	1.89991	6307.0069
$\frac{1}{16}$	1.89903	6281.3880	1.89948	6294.6042	1.89994	6307.8342
$\frac{1}{8}$	1.89906	6282.2137	1.89951	6295.4307	1.89997	6308.6616
$\frac{3}{16}$	1.89908	6283.0393	1.89954	6296.2572	1.90000	6309.4890
$\frac{1}{4}$	1.89911	6283.8650	1.89957	6297.0838	1.90003	6310.3164
$\frac{5}{16}$	1.89914	6284.6908	1.89960	6297.9104	1.90005	6311.1439
$\frac{3}{8}$	1.89917	6285.5166	1.89963	6298.7371	1.90008	6311.9715
$\frac{7}{16}$	1.89920	6286.3425	1.89966	6299.5638	1.90011	6312.7991
$\frac{1}{2}$	1.89923	6287.1684	1.89968	6300.3906	1.90014	6313.6267
$\frac{9}{16}$	1.89926	6287.9944	1.89971	6301.2175	1.90017	6314.4545
$\frac{5}{8}$	1.89928	6288.8204	1.89974	6302.0444	1.90020	6315.2822
$\frac{11}{16}$	1.89931	6289.6465	1.89977	6302.8713	1.90022	6316.1101
$\frac{3}{4}$	1.89934	6290.4727	1.89980	6303.6984	1.90025	6316.9379
$\frac{13}{16}$	1.89937	6291.2989	1.89983	6304.5254	1.90028	6317.7659
$\frac{7}{8}$	1.89940	6292.1251	1.89985	6305.3525	1.90031	6318.5939
$\frac{15}{16}$	1.89943	6292.9514	1.89988	6306.1797	1.90034	6319.4219

# 79'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90037	6320.2500	1.90082	6333.5069	1.90128	6346.7778
1/16	1.90040	6321.0782	1.90085	6334.3360	1.90131	6347.6077
1/8	1.90042	6321.9064	1.90088	6335.1650	1.90133	6348.4376
3/16	1.90045	6322.7346	1.90091	6335.9942	1.90136	6349.2676
1/4	1.90048	6323.5629	1.90094	6336.8234	1.90139	6350.0977
5/16	1.90051	6324.3913	1.90096	6337.6526	1.90142	6350.9278
3/8	1.90054	6325.2197	1.90099	6338.4819	1.90145	6351.7579
7/16	1.90057	6326.0482	1.90102	6339.3112	1.90148	6352.5881
1/2	1.90059	6326.8767	1.90105	6340.1406	1.90150	6353.4184
9/16	1.90062	6327.7053	1.90108	6340.9701	1.90153	6354.2487
5/8	1.90065	6328.5340	1.90111	6341.7996	1.90156	6355.0791
11/16	1.90068	6329.3627	1.90113	6342.6292	1.90159	6355.9095
3/4	1.90071	6330.1914	1.90116	6343.4588	1.90162	6356.7400
13/16	1.90074	6331.0202	1.90119	6344.2884	1.90165	6357.5706
7/8	1.90077	6331.8491	1.90122	6345.1182	1.90167	6358.4012
15/16	1.90079	6332.6780	1.90125	6345.9479	1.90170	6359.2318

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90173	6360.0625	1.90218	6373.3611	1.90264	6386.6736
1/16	1.90176	6360.8923	1.90221	6374.1927	1.90267	6387.5061
1/8	1.90179	6361.7241	1.90224	6375.0244	1.90269	6388.3387
3/16	1.90182	6362.5549	1.90227	6375.8561	1.90272	6389.1713
1/4	1.90184	6363.3859	1.90230	6376.6879	1.90275	6390.0039
5/16	1.90187	6364.2168	1.90233	6377.5198	1.90278	6390.8366
3/8	1.90190	6365.0479	1.90235	6378.3517	1.90281	6391.6694
7/16	1.90193	6365.8789	1.90238	6379.1836	1.90284	6392.5022
1/2	1.90196	6366.7101	1.90241	6380.0156	1.90286	6393.3351
9/16	1.90199	6367.5413	1.90244	6380.8477	1.90289	6394.1680
5/8	1.90201	6368.3725	1.90247	6381.6798	1.90292	6395.0010
11/16	1.90204	6369.2038	1.90250	6382.5120	1.90295	6395.8340
3/4	1.90207	6370.0352	1.90252	6383.3442	1.90298	6396.6671
13/16	1.90210	6370.8666	1.90255	6384.1765	1.90301	6397.5002
7/8	1.90213	6371.6980	1.90258	6385.0088	1.90303	6398.3334
15/16	1.90216	6372.5295	1.90261	6385.8412	1.90306	6399.1667

# 80'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90309	6400.0000	1.90354	6413.3403	1.90399	6426.6944
1/16	1.90312	6400.8334	1.90357	6414.1745	1.90402	6427.5295
1/8	1.90315	6401.6668	1.90360	6415.0088	1.90405	6428.3647
3/16	1.90317	6402.5002	1.90363	6415.8431	1.90408	6429.1999
1/4	1.90320	6403.3338	1.90366	6416.6775	1.90411	6430.0352
5/16	1.90323	6404.1673	1.90368	6417.5120	1.90413	6430.8705
3/8	1.90326	6405.0010	1.90371	6418.3465	1.90416	6431.7058
7/16	1.90329	6405.8347	1.90374	6419.1810	1.90419	6432.5413
1/2	1.90332	6406.6684	1.90377	6420.0156	1.90422	6433.3767
9/16	1.90334	6407.5022	1.90380	6420.8503	1.90425	6434.2123
5/8	1.90337	6408.3360	1.90382	6421.6850	1.90428	6435.0479
11/16	1.90340	6409.1699	1.90385	6422.5198	1.90430	6435.8835
3/4	1.90343	6410.0039	1.90388	6423.3546	1.90433	6436.7192
13/16	1.90346	6410.8379	1.90391	6424.1895	1.90436	6437.5549
7/8	1.90349	6411.6720	1.90394	6425.0244	1.90439	6438.3907
15/16	1.90351	6412.5061	1.90397	6425.8594	1.90442	6439.2266

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90445	6440.0625	1.90490	6453.4444	1.90535	6466.8403
1/16	1.90447	6440.8985	1.90492	6454.2813	1.90537	6467.6780
1/8	1.90450	6441.7345	1.90495	6455.1182	1.90540	6468.5157
3/16	1.90453	6442.5706	1.90498	6455.9551	1.90543	6469.3535
1/4	1.90456	6443.4067	1.90501	6456.7921	1.90546	6470.1914
5/16	1.90459	6444.2429	1.90504	6457.6292	1.90549	6471.0293
3/8	1.90461	6445.0791	1.90506	6458.4663	1.90551	6471.8673
7/16	1.90464	6445.9154	1.90509	6459.3034	1.90554	6472.7053
1/2	1.90467	6446.7517	1.90512	6460.1406	1.90557	6473.5434
9/16	1.90470	6447.5881	1.90515	6460.9779	1.90560	6474.3815
5/8	1.90473	6448.4246	1.90518	6461.8152	1.90563	6475.2197
11/16	1.90475	6449.2611	1.90521	6462.6526	1.90566	6476.0580
3/4	1.90478	6450.0977	1.90523	6463.4900	1.90568	6476.8963
13/16	1.90481	6450.9343	1.90526	6464.3275	1.90571	6477.7346
7/8	1.90484	6451.7709	1.90529	6465.1650	1.90574	6478.5730
15/16	1.90487	6452.6077	1.90532	6466.0026	1.90577	6479.4115

# 80'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90580	6480.2500	1.90625	6493.6736	1.90669	6507.1111
1/16	1.90582	6481.0886	1.90627	6494.5130	1.90672	6507.9514
1/8	1.90585	6481.9272	1.90630	6495.3525	1.90675	6508.7918
3/16	1.90588	6482.7659	1.90633	6496.1921	1.90678	6509.6322
1/4	1.90591	6483.6046	1.90636	6497.0317	1.90681	6510.4727
5/16	1.90594	6484.4434	1.90639	6497.8713	1.90683	6511.3132
3/8	1.90596	6485.2822	1.90641	6498.7110	1.90686	6512.1538
7/16	1.90599	6486.1211	1.90644	6499.5508	1.90689	6512.9944
1/2	1.90602	6486.9601	1.90647	6500.3906	1.90692	6513.8351
9/16	1.90605	6487.7991	1.90650	6501.2305	1.90695	6514.6758
5/8	1.90608	6488.6381	1.90653	6502.0704	1.90697	6515.5166
11/16	1.90610	6489.4772	1.90655	6502.9104	1.90700	6516.3574
3/4	1.90613	6490.3164	1.90658	6503.7504	1.90703	6517.1984
13/16	1.90616	6491.1556	1.90661	6504.5905	1.90706	6518.0393
7/8	1.90619	6491.9949	1.90664	6505.4307	1.90709	6518.8803
15/16	1.90622	6492.8342	1.90667	6506.2709	1.90711	6519.7214

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90714	6520.5625	1.90759	6534.0278	1.90804	6547.5069
1/16	1.90717	6521.4037	1.90762	6534.8698	1.90807	6548.3499
1/8	1.90720	6522.2449	1.90765	6535.7119	1.90809	6549.1928
3/16	1.90723	6523.0862	1.90767	6536.5541	1.90812	6550.0358
1/4	1.90725	6523.9275	1.90770	6537.3963	1.90815	6550.8789
5/16	1.90728	6524.7689	1.90773	6538.2385	1.90818	6551.7220
3/8	1.90731	6525.6104	1.90776	6539.0808	1.90821	6552.5652
7/16	1.90734	6526.4519	1.90779	6539.9232	1.90823	6553.4084
1/2	1.90737	6527.2934	1.90781	6540.7656	1.90826	6554.2517
9/16	1.90739	6528.1350	1.90784	6541.6081	1.90829	6555.0951
5/8	1.90742	6528.9767	1.90787	6542.4506	1.90832	6555.9385
11/16	1.90745	6529.8184	1.90790	6543.2932	1.90835	6556.7819
3/4	1.90748	6530.6602	1.90793	6544.1359	1.90837	6557.6254
13/16	1.90751	6531.5020	1.90795	6544.9785	1.90840	6558.4690
7/8	1.90753	6532.3439	1.90798	6545.8213	1.90843	6559.3126
15/16	1.90756	6533.1858	1.90801	6546.6641	1.90846	6560.1563



Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90849	6561.0000	1.90893	6574.5069	1.90938	6588.0278
$\frac{1}{16}$	1.90851	6561.8438	1.90896	6575.3516	1.90941	6588.8733
$\frac{1}{8}$	1.90854	6562.6876	1.90899	6576.1963	1.90943	6589.7189
$\frac{3}{16}$	1.90857	6563.5315	1.90902	6577.0410	1.90946	6590.5645
$\frac{1}{4}$	1.90860	6564.3754	1.90904	6577.8859	1.90949	6591.4102
$\frac{5}{16}$	1.90862	6565.2194	1.90907	6578.7307	1.90952	6592.2559
$\frac{3}{8}$	1.90865	6566.0635	1.90910	6579.5756	1.90954	6593.1017
$\frac{7}{16}$	1.90868	6566.9076	1.90913	6580.4206	1.90957	6593.9475
$\frac{1}{2}$	1.90871	6567.7517	1.90915	6581.2656	1.90960	6594.7934
$\frac{9}{16}$	1.90874	6568.5959	1.90918	6582.1107	1.90963	6595.6394
$\frac{5}{8}$	1.90876	6569.4402	1.90921	6582.9558	1.90966	6596.4854
$\frac{11}{16}$	1.90879	6570.2845	1.90924	6583.8010	1.90968	6597.3314
$\frac{3}{4}$	1.90882	6571.1289	1.90927	6584.6463	1.90971	6598.1775
$\frac{13}{16}$	1.90885	6571.9733	1.90929	6585.4916	1.90974	6599.0237
$\frac{7}{8}$	1.90888	6572.8178	1.90932	6586.3369	1.90977	6599.8699
$\frac{15}{16}$	1.90890	6573.6624	1.90935	6587.1823	1.90980	6600.7162

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.90982	6601.5625	1.91027	6615.1111	1.91071	6628.6736
$\frac{1}{16}$	1.90985	6602.4089	1.91030	6615.9584	1.91074	6629.5217
$\frac{1}{8}$	1.90988	6603.2553	1.91032	6616.8057	1.91077	6630.3699
$\frac{3}{16}$	1.90991	6604.1018	1.91035	6617.6530	1.91080	6631.2181
$\frac{1}{4}$	1.90993	6604.9484	1.91038	6618.5004	1.91082	6632.0664
$\frac{5}{16}$	1.90996	6605.7949	1.91041	6619.3479	1.91085	6632.9147
$\frac{3}{8}$	1.90999	6606.6416	1.91044	6620.1954	1.91088	6633.7631
$\frac{7}{16}$	1.91002	6607.4883	1.91046	6621.0430	1.91091	6634.6116
$\frac{1}{2}$	1.91005	6608.3351	1.91049	6621.8906	1.91094	6635.4601
$\frac{9}{16}$	1.91007	6609.1819	1.91052	6622.7383	1.91096	6636.3086
$\frac{5}{8}$	1.91010	6610.0288	1.91055	6623.5860	1.91099	6637.1572
$\frac{11}{16}$	1.91013	6610.8757	1.91057	6624.4338	1.91102	6638.0059
$\frac{3}{4}$	1.91016	6611.7227	1.91060	6625.2817	1.91105	6638.8546
$\frac{13}{16}$	1.91019	6612.5697	1.91063	6626.1296	1.91107	6639.7034
$\frac{7}{8}$	1.91021	6613.4168	1.91066	6626.9775	1.91110	6640.5522
$\frac{15}{16}$	1.91024	6614.2639	1.91069	6627.8255	1.91113	6641.4011

Fraction of an inch.	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.91116	6642.2500	1.91160	6655.8403	1.91204	6669.4444
$\frac{1}{16}$	1.91119	6643.0990	1.91163	6656.6901	1.91207	6670.2952
$\frac{1}{8}$	1.91121	6643.9480	1.91166	6657.5400	1.91210	6671.1459
$\frac{3}{16}$	1.91124	6644.7971	1.91168	6658.3900	1.91213	6671.9968
$\frac{1}{4}$	1.91127	6645.6463	1.91171	6659.2400	1.91216	6672.8477
$\frac{5}{16}$	1.91130	6646.4955	1.91174	6660.0901	1.91218	6673.6986
$\frac{3}{8}$	1.91132	6647.3447	1.91177	6660.9402	1.91221	6674.5496
$\frac{7}{16}$	1.91135	6648.1940	1.91180	6661.7904	1.91224	6675.4006
$\frac{1}{2}$	1.91138	6649.0434	1.91182	6662.6406	1.91227	6676.2517
$\frac{9}{16}$	1.91141	6649.8928	1.91185	6663.4909	1.91229	6677.1029
$\frac{5}{8}$	1.91144	6650.7423	1.91188	6664.3413	1.91232	6677.9541
$1\frac{1}{16}$	1.91146	6651.5918	1.91191	6665.1917	1.91235	6678.8054
$\frac{3}{4}$	1.91149	6652.4414	1.91193	6666.0421	1.91238	6679.6567
$1\frac{3}{16}$	1.91152	6653.2910	1.91196	6666.8926	1.91240	6680.5081
$\frac{7}{8}$	1.91155	6654.1407	1.91199	6667.7432	1.91243	6681.3595
$1\frac{5}{16}$	1.91157	6654.9905	1.91202	6668.5938	1.91246	6682.2110
Fraction of an inch.	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.91249	6683.0625	1.91293	6696.6944	1.91337	6710.3403
$\frac{1}{16}$	1.91252	6683.9141	1.91296	6697.5469	1.91340	6711.1936
$\frac{1}{8}$	1.91254	6684.7657	1.91299	6698.3994	1.91343	6712.0470
$\frac{3}{16}$	1.91257	6685.6174	1.91301	6699.2520	1.91346	6712.9004
$\frac{1}{4}$	1.91260	6686.4692	1.91304	6700.1046	1.91348	6713.7539
$\frac{5}{16}$	1.91263	6687.3210	1.91307	6700.9573	1.91351	6714.6074
$\frac{3}{8}$	1.91265	6688.1729	1.91310	6701.8100	1.91354	6715.4610
$\frac{7}{16}$	1.91268	6689.0248	1.91312	6702.6628	1.91357	6716.3147
$\frac{1}{2}$	1.91271	6689.8767	1.91315	6703.5156	1.91359	6717.1684
$\frac{9}{16}$	1.91274	6690.7288	1.91318	6704.3685	1.91362	6718.0222
$\frac{5}{8}$	1.91276	6691.5808	1.91321	6705.2215	1.91365	6718.8760
$1\frac{1}{16}$	1.91279	6692.4330	1.91323	6706.0745	1.91368	6719.7298
$\frac{3}{4}$	1.91282	6693.2852	1.91326	6706.9275	1.91370	6720.5838
$1\frac{3}{16}$	1.91285	6694.1374	1.91329	6707.7806	1.91373	6721.4377
$\frac{7}{8}$	1.91287	6694.9897	1.91332	6708.6338	1.91376	6722.2918
$1\frac{5}{16}$	1.91290	6695.8420	1.91334	6709.4870	1.91379	6723.1459

# 82'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.91381	6724.0000	1.91425	6737.6736	1.91470	6751.3611
1/16	1.91384	6724.8542	1.91428	6738.5287	1.91472	6752.2170
1/8	1.91387	6725.7084	1.91431	6739.3838	1.91475	6753.0730
3/16	1.91390	6726.5627	1.91434	6740.2390	1.91478	6753.9291
1/4	1.91392	6727.4171	1.91437	6741.0942	1.91481	6754.7852
5/16	1.91395	6728.2715	1.91439	6741.9495	1.91483	6755.6413
3/8	1.91398	6729.1260	1.91442	6742.8048	1.91486	6756.4975
7/16	1.91401	6729.9805	1.91445	6743.6602	1.91489	6757.3538
1/2	1.91403	6730.8351	1.91448	6744.5156	1.91492	6758.2101
9/16	1.91406	6731.6897	1.91450	6745.3711	1.91494	6759.0664
5/8	1.91409	6732.5444	1.91453	6746.2267	1.91497	6759.9229
11/16	1.91412	6733.3991	1.91456	6747.0823	1.91500	6760.7793
3/4	1.91414	6734.2539	1.91459	6747.9379	1.91503	6761.6359
13/16	1.91417	6735.1088	1.91461	6748.7936	1.91505	6762.4924
7/8	1.91420	6735.9637	1.91464	6749.6494	1.91508	6763.3491
15/16	1.91423	6736.8186	1.91467	6750.5052	1.91511	6764.2058

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.91514	6765.0625	1.91558	6778.7778	1.91602	6792.5069
1/16	1.91516	6765.9193	1.91560	6779.6354	1.91604	6793.3655
1/8	1.91519	6766.7762	1.91563	6780.4932	1.91607	6794.2241
3/16	1.91522	6767.6331	1.91566	6781.3509	1.91610	6795.0827
1/4	1.91525	6768.4900	1.91569	6782.2088	1.91612	6795.9414
5/16	1.91527	6769.3470	1.91571	6783.0667	1.91615	6796.8002
3/8	1.91530	6770.2041	1.91574	6783.9246	1.91618	6797.6590
7/16	1.91533	6771.0612	1.91577	6784.7826	1.91621	6798.5178
1/2	1.91536	6771.9184	1.91580	6785.6406	1.91623	6799.3767
9/16	1.91538	6772.7756	1.91582	6786.4987	1.91626	6800.2357
5/8	1.91541	6773.6329	1.91585	6787.3569	1.91629	6801.0947
11/16	1.91544	6774.4903	1.91588	6788.2151	1.91632	6801.9538
3/4	1.91547	6775.3477	1.91591	6789.0734	1.91634	6802.8129
13/16	1.91549	6776.2051	1.91593	6789.9317	1.91637	6803.6721
7/8	1.91552	6777.0626	1.91596	6790.7900	1.91640	6804.5314
15/16	1.91555	6777.9202	1.91599	6791.6485	1.91643	6805.3907

# 82'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.91645	6806.2500	1.91689	6820.0000	1.91733	6833.7778
$\frac{1}{16}$	1.91648	6807.1094	1.91692	6820.8672	1.91736	6834.6389
$\frac{1}{8}$	1.91651	6807.9689	1.91695	6821.7275	1.91739	6835.5001
$\frac{3}{16}$	1.91654	6808.8284	1.91697	6822.5879	1.91741	6836.3614
$\frac{1}{4}$	1.91656	6809.6879	1.91700	6823.4484	1.91744	6837.2227
$\frac{5}{16}$	1.91659	6810.5476	1.91703	6824.3088	1.91747	6838.0840
$\frac{3}{8}$	1.91662	6811.4072	1.91706	6825.1694	1.91749	6838.9454
$\frac{7}{16}$	1.91665	6812.2670	1.91708	6826.0300	1.91752	6839.8069
$\frac{1}{2}$	1.91667	6813.1267	1.91711	6826.8906	1.91755	6840.6684
$\frac{9}{16}$	1.91670	6813.9866	1.91714	6827.7513	1.91758	6841.5300
$\frac{5}{8}$	1.91673	6814.8465	1.91717	6828.6121	1.91760	6842.3916
$1\frac{1}{16}$	1.91676	6815.7064	1.91719	6829.4729	1.91763	6843.2533
$\frac{3}{4}$	1.91678	6816.5664	1.91722	6830.3338	1.91766	6844.1150
$1\frac{3}{16}$	1.91681	6817.4265	1.91725	6831.1947	1.91769	6844.9768
$\frac{7}{8}$	1.91684	6818.2866	1.91728	6832.0557	1.91771	6845.8387
$1\frac{5}{16}$	1.91687	6819.1467	1.91730	6832.9167	1.91774	6846.7005

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.91777	6847.5625	1.91821	6861.3611	1.91864	6875.1736
$\frac{1}{16}$	1.91780	6848.4245	1.91823	6862.2240	1.91867	6876.0374
$\frac{1}{8}$	1.91782	6849.2866	1.91826	6863.0869	1.91870	6876.9012
$\frac{3}{16}$	1.91785	6850.1487	1.91829	6863.9499	1.91872	6877.7650
$\frac{1}{4}$	1.91788	6851.0109	1.91831	6864.8129	1.91875	6878.6289
$\frac{5}{16}$	1.91790	6851.8731	1.91834	6865.6760	1.91878	6879.4929
$\frac{3}{8}$	1.91793	6852.7354	1.91837	6866.5392	1.91881	6880.3569
$\frac{7}{16}$	1.91796	6853.5977	1.91840	6867.4024	1.91883	6881.2209
$\frac{1}{2}$	1.91799	6854.4601	1.91842	6868.2656	1.91886	6882.0851
$\frac{9}{16}$	1.91801	6855.3225	1.91845	6869.1289	1.91889	6882.9492
$\frac{5}{8}$	1.91804	6856.1850	1.91848	6869.9923	1.91891	6883.8135
$1\frac{1}{16}$	1.91807	6857.0476	1.91851	6870.8557	1.91894	6884.6778
$\frac{3}{4}$	1.91810	6857.9102	1.91853	6871.7192	1.91897	6885.5421
$1\frac{3}{16}$	1.91812	6858.7728	1.91856	6872.5827	1.91900	6886.4065
$\frac{7}{8}$	1.91815	6859.6355	1.91859	6873.4463	1.91902	6887.2709
$1\frac{5}{16}$	1.91818	6860.4983	1.91861	6874.3099	1.91905	6888.1354

0'		1'		2'	
Log.	Square.	Log.	Square.	Log.	Square.
1.91908	6889.0000	1.91951	6902.8403	1.91995	6916.6944
1.91911	6889.8646	1.91954	6903.7058	1.91998	6917.5608
1.91913	6890.7293	1.91957	6904.5713	1.92000	6918.4272
1.91916	6891.5940	1.91960	6905.4369	1.92003	6919.2936
1.91919	6892.4588	1.91962	6906.3025	1.92006	6920.1602
1.91921	6893.3236	1.91965	6907.1682	1.92009	6921.0267
1.91924	6894.1885	1.91968	6908.0340	1.92011	6921.8933
1.91927	6895.0534	1.91970	6908.8998	1.92014	6922.7600
1.91930	6895.9184	1.91973	6909.7656	1.92017	6923.6267
1.91932	6896.7834	1.91976	6910.6315	1.92019	6924.4935
1.91935	6897.6485	1.91979	6911.4975	1.92022	6925.3604
1.91938	6898.5137	1.91981	6912.3635	1.92025	6926.2272
1.91941	6899.3789	1.91984	6913.2296	1.92028	6927.0942
1.91943	6900.2442	1.91987	6914.0957	1.92030	6927.9612
1.91946	6901.1095	1.91989	6914.9619	1.92033	6928.8282
1.91949	6901.9749	1.91992	6915.8282	1.92036	6929.6953
3'		4'		5'	
Log.	Square.	Log.	Square.	Log.	Square.
1.92038	6930.5625	1.92082	6944.4444	1.92125	6958.3403
1.92041	6931.4297	1.92085	6945.3125	1.92128	6959.2092
1.92044	6932.2970	1.92087	6946.1807	1.92131	6960.0782
1.92047	6933.1643	1.92090	6947.0489	1.92133	6960.9473
1.92049	6934.0317	1.92093	6947.9171	1.92136	6961.8164
1.92052	6934.8991	1.92095	6948.7854	1.92139	6962.6856
1.92055	6935.7666	1.92098	6949.6538	1.92142	6963.5548
1.92057	6936.6341	1.92101	6950.5222	1.92144	6964.4241
1.92060	6937.5017	1.92104	6951.3906	1.92147	6965.2934
1.92063	6938.3694	1.92106	6952.2591	1.92150	6966.1628
1.92066	6939.2371	1.92109	6953.1277	1.92152	6967.0322
1.92068	6940.1048	1.92112	6953.9963	1.92155	6967.9017
1.92071	6940.9727	1.92114	6954.8650	1.92158	6968.7713
1.92074	6941.8405	1.92117	6955.7338	1.92161	6969.6409
1.92076	6942.7084	1.92120	6956.6025	1.92163	6970.5105
1.92079	6943.5764	1.92123	6957.4714	1.92166	6971.3802

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92169	6972.2500	1.92212	6986.1736	1.92255	7000.1111
$\frac{1}{16}$	1.92171	6973.1198	1.92215	6987.0443	1.92258	7000.9827
$\frac{1}{8}$	1.92174	6973.9897	1.92217	6987.9150	1.92261	7001.8543
$\frac{3}{16}$	1.92177	6974.8596	1.92220	6988.7858	1.92263	7002.7259
$\frac{1}{4}$	1.92179	6975.7296	1.92223	6989.6567	1.92266	7003.5977
$\frac{5}{16}$	1.92182	6976.5996	1.92225	6990.5276	1.92269	7004.4694
$\frac{3}{8}$	1.92185	6977.4697	1.92228	6991.3985	1.92271	7005.3413
$\frac{7}{16}$	1.92188	6978.3399	1.92231	6992.2696	1.92274	7006.2131
$\frac{1}{2}$	1.92190	6979.2101	1.92234	6993.1406	1.92277	7007.0851
$\frac{9}{16}$	1.92193	6980.0803	1.92236	6994.0117	1.92280	7007.9571
$\frac{5}{8}$	1.92196	6980.9506	1.92239	6994.8829	1.92282	7008.8291
$1\frac{1}{16}$	1.92198	6981.8210	1.92242	6995.7542	1.92285	7009.7012
$\frac{3}{4}$	1.92201	6982.6914	1.92244	6996.6254	1.92288	7010.5734
$1\frac{3}{16}$	1.92204	6983.5619	1.92247	6997.4968	1.92290	7011.4456
$\frac{7}{8}$	1.92207	6984.4324	1.92250	6998.3682	1.92293	7012.3178
$1\frac{5}{16}$	1.92209	6985.3030	1.92253	6999.2396	1.92296	7013.1901

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92298	7014.0625	1.92342	7028.0278	1.92385	7042.0069
$\frac{1}{16}$	1.92301	7014.9349	1.92344	7028.9011	1.92388	7042.8811
$\frac{1}{8}$	1.92304	7015.8074	1.92347	7029.7744	1.92390	7043.7553
$\frac{3}{16}$	1.92307	7016.6799	1.92350	7030.6478	1.92393	7044.6296
$\frac{1}{4}$	1.92309	7017.5525	1.92352	7031.5213	1.92396	7045.5039
$\frac{5}{16}$	1.92312	7018.4252	1.92355	7032.3948	1.92398	7046.3783
$\frac{3}{8}$	1.92315	7019.2979	1.92358	7033.2683	1.92401	7047.2527
$\frac{7}{16}$	1.92317	7020.1706	1.92361	7034.1420	1.92404	7048.1272
$\frac{1}{2}$	1.92320	7021.0434	1.92363	7035.0156	1.92406	7049.0017
$\frac{9}{16}$	1.92323	7021.9163	1.92366	7035.8894	1.92409	7049.8763
$\frac{5}{8}$	1.92325	7022.7892	1.92369	7036.7631	1.92412	7050.7510
$1\frac{1}{16}$	1.92328	7023.6621	1.92371	7037.6370	1.92414	7051.6257
$\frac{3}{4}$	1.92331	7024.5352	1.92374	7038.5109	1.92417	7052.5004
$1\frac{3}{16}$	1.92334	7025.4082	1.92377	7039.3848	1.92420	7053.3752
$\frac{7}{8}$	1.92336	7026.2814	1.92379	7040.2588	1.92423	7054.2501
$1\frac{5}{16}$	1.92339	7027.1545	1.92382	7041.1328	1.92425	7055.1250

# 84'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92428	7056.0000	1.92471	7070.0069	1.92514	7084.0278
1/16	1.92431	7056.8750	1.92474	7070.8828	1.92517	7084.9045
1/8	1.92433	7057.7501	1.92476	7071.7588	1.92519	7085.7814
3/16	1.92436	7058.6252	1.92479	7072.6348	1.92522	7086.6582
1/4	1.92439	7059.5004	1.92482	7073.5109	1.92525	7087.5352
5/16	1.92441	7060.3757	1.92484	7074.3870	1.92527	7088.4121
3/8	1.92444	7061.2510	1.92487	7075.2631	1.92530	7089.2892
7/16	1.92447	7062.1263	1.92490	7076.1394	1.92533	7090.1663
1/2	1.92449	7063.0017	1.92493	7077.0156	1.92536	7091.0434
9/16	1.92452	7063.8772	1.92495	7077.8920	1.92538	7091.9206
5/8	1.92455	7064.7527	1.92498	7078.7683	1.92541	7092.7979
11/16	1.92458	7065.6283	1.92501	7079.6448	1.92544	7093.6752
3/4	1.92460	7066.5039	1.92503	7080.5213	1.92546	7094.5525
13/16	1.92463	7067.3796	1.92506	7081.3978	1.92549	7095.4299
7/8	1.92466	7068.2553	1.92509	7082.2744	1.92552	7096.3074
15/16	1.92468	7069.1311	1.92511	7083.1511	1.92554	7097.1849
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92557	7098.0625	1.92600	7112.1111	1.92643	7126.1736
1/16	1.92560	7098.9401	1.92603	7112.9896	1.92645	7127.0530
1/8	1.92562	7099.8178	1.92605	7113.8682	1.92648	7127.9324
3/16	1.92565	7100.6956	1.92608	7114.7468	1.92651	7128.8119
1/4	1.92568	7101.5734	1.92611	7115.6254	1.92654	7129.6914
5/16	1.92570	7102.4512	1.92613	7116.5042	1.92656	7130.5710
3/8	1.92573	7103.3291	1.92616	7117.3829	1.92659	7131.4506
7/16	1.92576	7104.2071	1.92619	7118.2617	1.92662	7132.3303
1/2	1.92578	7105.0851	1.92621	7119.1406	1.92664	7133.2101
9/16	1.92581	7105.9631	1.92624	7120.0196	1.92667	7134.0899
5/8	1.92584	7106.8413	1.92627	7120.8985	1.92670	7134.9697
11/16	1.92587	7107.7194	1.92629	7121.7776	1.92672	7135.8496
3/4	1.92589	7108.5977	1.92632	7122.6567	1.92675	7136.7296
13/16	1.92592	7109.4759	1.92635	7123.5358	1.92678	7137.6096
7/8	1.92595	7110.3543	1.92637	7124.4150	1.92680	7138.4897
15/16	1.92597	7111.2327	1.92640	7125.2943	1.92683	7139.3698

# 84'

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92686	7140.2500	1.92728	7154.3403	1.92771	7168.4444
1/16	1.92688	7141.1302	1.92731	7155.2214	1.92774	7169.3264
1/8	1.92691	7142.0105	1.92734	7156.1025	1.92777	7170.2084
3/16	1.92694	7142.8909	1.92737	7156.9838	1.92779	7171.0905
1/4	1.92696	7143.7713	1.92739	7157.8650	1.92782	7171.9727
5/16	1.92699	7144.6517	1.92742	7158.7463	1.92785	7172.8548
3/8	1.92702	7145.5322	1.92745	7159.6277	1.92787	7173.7371
7/16	1.92704	7146.4128	1.92747	7160.5091	1.92790	7174.6194
1/2	1.92707	7147.2934	1.92750	7161.3906	1.92793	7175.5017
9/16	1.92710	7148.1741	1.92753	7162.2722	1.92795	7176.3841
5/8	1.92712	7149.0548	1.92755	7163.1538	1.92798	7177.2666
11/16	1.92715	7149.9356	1.92758	7164.0354	1.92801	7178.1491
3/4	1.92718	7150.8164	1.92761	7164.9171	1.92803	7179.0317
13/16	1.92720	7151.6973	1.92763	7165.7989	1.92806	7179.9143
7/8	1.92723	7152.5782	1.92766	7166.6807	1.92809	7180.7970
15/16	1.92726	7153.4592	1.92769	7167.5625	1.92811	7181.6797
Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92814	7182.5625	1.92857	7196.6944	1.92899	7210.8403
1/16	1.92817	7183.4453	1.92859	7197.5782	1.92902	7211.7249
1/8	1.92819	7184.3282	1.92862	7198.4619	1.92905	7212.6095
3/16	1.92822	7185.2112	1.92865	7199.3457	1.92907	7213.4942
1/4	1.92825	7186.0942	1.92867	7200.2296	1.92910	7214.3789
5/16	1.92827	7186.9772	1.92870	7201.1135	1.92913	7215.2637
3/8	1.92830	7187.8604	1.92873	7201.9975	1.92915	7216.1485
7/16	1.92833	7188.7435	1.92875	7202.8815	1.92918	7217.0334
1/2	1.92835	7189.6267	1.92878	7203.7656	1.92921	7217.9184
9/16	1.92838	7190.5100	1.92881	7204.6498	1.92923	7218.8034
5/8	1.92841	7191.3933	1.92883	7205.5340	1.92926	7219.6885
11/16	1.92843	7192.2767	1.92886	7206.4182	1.92929	7220.5736
3/4	1.92846	7193.1602	1.92889	7207.3025	1.92931	7221.4588
13/16	1.92849	7194.0436	1.92891	7208.1869	1.92934	7222.3440
7/8	1.92851	7194.9272	1.92894	7209.0713	1.92937	7223.2293
15/16	1.92854	7195.8108	1.92897	7209.9558	1.92939	7224.1146



Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.92942	7225.0000	1.92984	7239.1736	1.93027	7253.3611
$\frac{1}{16}$	1.92945	7225.8854	1.92987	7240.0599	1.93030	7254.2483
$\frac{1}{8}$	1.92947	7226.7709	1.92990	7240.9463	1.93032	7255.1355
$\frac{3}{16}$	1.92950	7227.6565	1.92992	7241.8327	1.93035	7256.0228
$\frac{1}{4}$	1.92953	7228.5421	1.92995	7242.7192	1.93038	7256.9102
$\frac{5}{16}$	1.92955	7229.4278	1.92998	7243.6057	1.93040	7257.7976
$\frac{3}{8}$	1.92958	7230.3135	1.93000	7244.4923	1.93043	7258.6850
$\frac{7}{16}$	1.92961	7231.1992	1.93003	7245.3789	1.93046	7259.5725
$\frac{1}{2}$	1.92963	7232.0851	1.93006	7246.2656	1.93048	7260.4601
$\frac{9}{16}$	1.92966	7232.9709	1.93008	7247.1524	1.93051	7261.3477
$\frac{5}{8}$	1.92968	7233.8569	1.93011	7248.0392	1.93054	7262.2354
$\frac{11}{16}$	1.92971	7234.7429	1.93014	7248.9260	1.93056	7263.1231
$\frac{3}{4}$	1.92974	7235.6289	1.93016	7249.8129	1.93059	7264.0109
$\frac{13}{16}$	1.92976	7236.5150	1.93019	7250.6999	1.93061	7264.8987
$\frac{7}{8}$	1.92979	7237.4012	1.93022	7251.5869	1.93064	7265.7866
$\frac{15}{16}$	1.92982	7238.2874	1.93024	7252.4740	1.93067	7266.6745
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93069	7267.5625	1.93112	7281.7778	1.93154	7296.0069
$\frac{1}{16}$	1.93072	7268.4505	1.93115	7282.6667	1.93157	7296.8967
$\frac{1}{8}$	1.93075	7269.3387	1.93117	7283.5557	1.93160	7297.7866
$\frac{3}{16}$	1.93077	7270.2268	1.93120	7284.4447	1.93162	7298.6765
$\frac{1}{4}$	1.93080	7271.1150	1.93122	7285.3338	1.93165	7299.5664
$\frac{5}{16}$	1.93083	7272.0033	1.93125	7286.2229	1.93168	7300.4564
$\frac{3}{8}$	1.93085	7272.8916	1.93128	7287.1121	1.93170	7301.3465
$\frac{7}{16}$	1.93088	7273.7800	1.93130	7288.0013	1.93173	7302.2366
$\frac{1}{2}$	1.93091	7274.6684	1.93133	7288.8906	1.93175	7303.1267
$\frac{9}{16}$	1.93093	7275.5569	1.93136	7289.7800	1.93178	7304.0170
$\frac{5}{8}$	1.93096	7276.4454	1.93138	7290.6694	1.93181	7304.9072
$\frac{11}{16}$	1.93099	7277.3340	1.93141	7291.5588	1.93183	7305.7976
$\frac{3}{4}$	1.93101	7278.2227	1.93144	7292.4484	1.93186	7306.6879
$\frac{13}{16}$	1.93104	7279.1114	1.93146	7293.3379	1.93189	7307.5784
$\frac{7}{8}$	1.93107	7280.0001	1.93149	7294.2275	1.93191	7308.4689
$\frac{15}{16}$	1.93109	7280.8889	1.93152	7295.1172	1.93194	7309.3594

Fractions of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93197	7310.2500	1.93239	7324.5069	1.93281	7338.7778
$\frac{1}{16}$	1.93199	7311.1407	1.93242	7325.3985	1.93284	7339.6702
$\frac{1}{8}$	1.93202	7312.0314	1.93244	7326.2900	1.93286	7340.5626
$\frac{3}{16}$	1.93205	7312.9221	1.93247	7327.1817	1.93289	7341.4551
$\frac{1}{4}$	1.93207	7313.8129	1.93249	7328.0734	1.93292	7342.3477
$\frac{5}{16}$	1.93210	7314.7088	1.93252	7328.9651	1.93294	7343.2403
$\frac{3}{8}$	1.93212	7315.5947	1.93255	7329.8569	1.93297	7344.1329
$\frac{7}{16}$	1.93215	7316.4857	1.93257	7330.7487	1.93300	7345.0256
$\frac{1}{2}$	1.93218	7317.3767	1.93260	7331.6406	1.93302	7345.9184
$\frac{9}{16}$	1.93220	7318.2678	1.93263	7332.5326	1.93305	7346.8112
$\frac{5}{8}$	1.93223	7319.1590	1.93265	7333.4246	1.93308	7347.7041
$1\frac{1}{16}$	1.93226	7320.0502	1.93268	7334.3167	1.93310	7348.5970
$\frac{3}{4}$	1.93228	7320.9414	1.93271	7335.2088	1.93313	7349.4900
$1\frac{1}{8}$	1.93231	7321.8327	1.93273	7336.1009	1.93315	7350.3831
$\frac{7}{8}$	1.93234	7322.7241	1.93276	7336.9932	1.93318	7351.2762
$1\frac{1}{2}$	1.93236	7323.6155	1.93279	7337.8854	1.93321	7352.1693
Fractions of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93323	7353.0625	1.93366	7367.3611	1.93408	7381.6736
$\frac{1}{16}$	1.93326	7353.9558	1.93368	7368.2552	1.93410	7382.5686
$\frac{1}{8}$	1.93329	7354.8491	1.93371	7369.1494	1.93413	7383.4637
$\frac{3}{16}$	1.93331	7355.7424	1.93374	7370.0436	1.93416	7384.3588
$\frac{1}{4}$	1.93334	7356.6359	1.93376	7370.9379	1.93418	7385.2539
$\frac{5}{16}$	1.93337	7357.5293	1.93379	7371.8323	1.93421	7386.1491
$\frac{3}{8}$	1.93339	7358.4229	1.93381	7372.7267	1.93424	7387.0444
$\frac{7}{16}$	1.93342	7359.3164	1.93384	7373.6211	1.93426	7387.9397
$\frac{1}{2}$	1.93345	7360.2101	1.93387	7374.5156	1.93429	7388.8351
$\frac{9}{16}$	1.93347	7361.1038	1.93389	7375.4102	1.93431	7389.7305
$\frac{5}{8}$	1.93350	7361.9975	1.93392	7376.3048	1.93434	7390.6260
$1\frac{1}{16}$	1.93352	7362.8913	1.93395	7377.1995	1.93437	7391.5215
$\frac{3}{4}$	1.93355	7363.7852	1.93397	7378.0942	1.93439	7392.4171
$1\frac{1}{8}$	1.93358	7364.6791	1.93400	7378.9890	1.93442	7393.3127
$\frac{7}{8}$	1.93360	7365.5730	1.93402	7379.8838	1.93445	7394.2084
$1\frac{1}{2}$	1.93363	7366.4670	1.93405	7380.7787	1.93447	7395.1042

Fraction of an inch	0'		1"		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93450	7396.0000	1.93492	7410.3403	1.93534	7424.6944
1/16	1.93452	7396.8959	1.93495	7411.2370	1.93537	7425.5920
1/8	1.93455	7397.7918	1.93497	7412.1338	1.93539	7426.4897
3/16	1.93458	7398.6877	1.93500	7413.0306	1.93542	7427.3874
1/4	1.93460	7399.5838	1.93502	7413.9275	1.93544	7428.2852
5/16	1.93463	7400.4798	1.93505	7414.8245	1.93547	7429.1830
3/8	1.93466	7401.3760	1.93508	7415.7215	1.93550	7430.0808
7/16	1.93468	7402.2722	1.93510	7416.6185	1.93552	7430.9788
1/2	1.93471	7403.1684	1.93513	7417.5156	1.93555	7431.8767
9/16	1.93474	7404.0647	1.93516	7418.4128	1.93558	7432.7748
5/8	1.93476	7404.9610	1.93518	7419.3100	1.93560	7433.6729
11/16	1.93479	7405.8574	1.93521	7420.2073	1.93563	7434.5710
3/4	1.93481	7406.7539	1.93523	7421.1046	1.93565	7435.4692
13/16	1.93484	7407.6504	1.93526	7422.0020	1.93568	7436.3674
7/8	1.93487	7408.5470	1.93529	7422.8994	1.93571	7437.2657
15/16	1.93489	7409.4436	1.93531	7423.7969	1.93573	7438.1641
Fraction of an inch	3'		Of 4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93576	7439.0625	1.93618	7453.4444	1.93660	7467.8403
1/16	1.93579	7439.9610	1.93620	7454.3438	1.93662	7468.7405
1/8	1.93581	7440.8595	1.93623	7455.2432	1.93665	7469.6407
3/16	1.93584	7441.7581	1.93626	7456.1426	1.93668	7470.5410
1/4	1.93586	7442.6567	1.93628	7457.0421	1.93670	7471.4414
5/16	1.93589	7443.5554	1.93631	7457.9417	1.93673	7472.3418
3/8	1.93592	7444.4541	1.93634	7458.8413	1.93675	7473.2423
7/16	1.93594	7445.3529	1.93636	7459.7409	1.93678	7474.1428
1/2	1.93597	7446.2517	1.93639	7460.6406	1.93681	7475.0434
9/16	1.93600	7447.1506	1.93641	7461.5404	1.93683	7475.9440
5/8	1.93602	7448.0496	1.93644	7462.4402	1.93686	7476.8447
11/16	1.93605	7448.9486	1.93647	7463.3401	1.93689	7477.7455
3/4	1.93607	7449.8477	1.93649	7464.2400	1.93691	7478.6463
13/16	1.93610	7450.7468	1.93652	7465.1400	1.93694	7479.5471
7/8	1.93613	7451.6459	1.93655	7466.0400	1.93696	7480.4480
15/16	1.93615	7452.5452	1.93657	7466.9401	1.93699	7481.3490

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93702	7482.2500	1.93743	7496.6736	1.93785	7511.1111
$\frac{1}{16}$	1.93704	7483.1511	1.93746	7497.5755	1.93788	7512.0139
$\frac{1}{8}$	1.93707	7484.0522	1.93749	7498.4775	1.93790	7512.9168
$\frac{3}{16}$	1.93709	7484.9534	1.93751	7499.3796	1.93793	7513.8197
$\frac{1}{4}$	1.93712	7485.8546	1.93754	7500.2817	1.93796	7514.7227
$\frac{5}{16}$	1.93715	7486.7559	1.93756	7501.1838	1.93798	7515.6257
$\frac{3}{8}$	1.93717	7487.6572	1.93759	7502.0860	1.93801	7516.5288
$\frac{7}{16}$	1.93720	7488.5586	1.93762	7502.9883	1.93803	7517.4319
$\frac{1}{2}$	1.93723	7489.4601	1.93764	7503.8906	1.93806	7518.3351
$\frac{9}{16}$	1.93725	7490.3616	1.93767	7504.7930	1.93809	7519.2383
$\frac{5}{8}$	1.93728	7491.2631	1.93770	7505.6954	1.93811	7520.1416
$\frac{11}{16}$	1.93730	7492.1647	1.93772	7506.5979	1.93814	7521.0449
$\frac{3}{4}$	1.93733	7493.0664	1.93775	7507.5004	1.93817	7521.9484
$\frac{13}{16}$	1.93736	7493.9681	1.93777	7508.4030	1.93819	7522.8518
$\frac{7}{8}$	1.93738	7494.8699	1.93780	7509.3057	1.93822	7523.7553
$\frac{15}{16}$	1.93741	7495.7717	1.93783	7510.2084	1.93824	7524.6589
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93827	7525.5625	1.93869	7540.0278	1.93910	7554.5069
$\frac{1}{16}$	1.93830	7526.4662	1.93871	7540.9323	1.93913	7555.4124
$\frac{1}{8}$	1.93832	7527.3699	1.93874	7541.8369	1.93916	7556.3178
$\frac{3}{16}$	1.93835	7528.2737	1.93876	7542.7416	1.93918	7557.2233
$\frac{1}{4}$	1.93837	7529.1775	1.93879	7543.6463	1.93921	7558.1289
$\frac{5}{16}$	1.93840	7530.0814	1.93882	7544.5510	1.93923	7559.0345
$\frac{3}{8}$	1.93843	7530.9854	1.93884	7545.4558	1.93926	7559.9402
$\frac{7}{16}$	1.93845	7531.8894	1.93887	7546.3607	1.93929	7560.8459
$\frac{1}{2}$	1.93848	7532.7934	1.93889	7547.2656	1.93931	7561.7517
$\frac{9}{16}$	1.93850	7533.6975	1.93892	7548.1706	1.93934	7562.6576
$\frac{5}{8}$	1.93853	7534.6017	1.93895	7549.0756	1.93936	7563.5635
$\frac{11}{16}$	1.93856	7535.5059	1.93897	7549.9807	1.93939	7564.4694
$\frac{3}{4}$	1.93858	7536.4102	1.93900	7550.8859	1.93942	7565.3754
$\frac{13}{16}$	1.93861	7537.3145	1.93902	7551.7910	1.93944	7566.2815
$\frac{7}{8}$	1.93863	7538.2189	1.93905	7552.6963	1.93947	7567.1876
$\frac{15}{16}$	1.93866	7539.1233	1.93908	7553.6016	1.93949	7568.0938

Fraction of an inch	0'		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.93952	7569.0000	1.93994	7583.5069	1.94035	7598.0278
1/16	1.93955	7569.9063	1.93996	7584.4141	1.94038	7598.9358
1/8	1.93957	7570.8126	1.93999	7585.3213	1.94040	7599.8439
3/16	1.93960	7571.7190	1.94001	7586.2285	1.94043	7600.7520
1/4	1.93962	7572.6254	1.94004	7587.1359	1.94045	7601.6602
5/16	1.93965	7573.5319	1.94006	7588.0432	1.94048	7602.5684
3/8	1.93968	7574.4385	1.94009	7588.9506	1.94051	7603.4767
7/16	1.93970	7575.3451	1.94012	7589.8581	1.94053	7604.3850
1/2	1.93973	7576.2517	1.94014	7590.7656	1.94056	7605.2934
9/16	1.93975	7577.1584	1.94017	7591.6732	1.94058	7606.2019
5/8	1.93978	7578.0652	1.94019	7592.5808	1.94061	7607.1104
11/16	1.93981	7578.9720	1.94022	7593.4885	1.94064	7608.0189
3/4	1.93983	7579.8789	1.94025	7594.3963	1.94066	7608.9275
13/16	1.93986	7580.7858	1.94027	7595.3041	1.94069	7609.8362
7/8	1.93988	7581.6928	1.94030	7596.2119	1.94071	7610.7449
15/16	1.93991	7582.5999	1.94032	7597.1198	1.94074	7611.6537
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94077	7612.5625	1.94118	7627.1111	1.94159	7641.6736
1/16	1.94079	7613.4714	1.94121	7628.0209	1.94162	7642.5842
1/8	1.94082	7614.3803	1.94123	7628.9307	1.94165	7643.4949
3/16	1.94084	7615.2893	1.94126	7629.8405	1.94167	7644.4056
1/4	1.94087	7616.1984	1.94128	7630.7504	1.94170	7645.3164
5/16	1.94090	7617.1074	1.94131	7631.6604	1.94172	7646.2272
3/8	1.94092	7618.0166	1.94134	7632.5704	1.94175	7647.1381
7/16	1.94095	7618.9258	1.94136	7633.4805	1.94178	7648.0491
1/2	1.94097	7619.8351	1.94139	7634.3906	1.94180	7648.9601
9/16	1.94100	7620.7444	1.94141	7635.3008	1.94183	7649.8711
5/8	1.94102	7621.6538	1.94144	7636.2110	1.94185	7650.7822
11/16	1.94105	7622.5632	1.94146	7637.1213	1.94188	7651.6934
3/4	1.94108	7623.4727	1.94149	7638.0317	1.94190	7652.6046
13/16	1.94110	7624.3822	1.94152	7638.9421	1.94193	7653.5159
7/8	1.94113	7625.2918	1.94154	7639.8525	1.94196	7654.4272
15/16	1.94115	7626.2014	1.94157	7640.7630	1.94198	7655.3386

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94201	7656.2500	1.94242	7670.8403	1.94283	7685.4444
$\frac{1}{16}$	1.94203	7657.1615	1.94245	7671.7526	1.94286	7686.3577
$\frac{1}{8}$	1.94206	7658.0730	1.94247	7672.6650	1.94289	7687.2709
$\frac{3}{16}$	1.94209	7658.9846	1.94250	7673.5775	1.94291	7688.1843
$\frac{1}{4}$	1.94211	7659.8963	1.94252	7674.4900	1.94294	7689.0977
$\frac{5}{16}$	1.94214	7660.8080	1.94255	7675.4026	1.94296	7690.0111
$\frac{3}{8}$	1.94216	7661.7197	1.94258	7676.3152	1.94299	7690.9246
$\frac{7}{16}$	1.94219	7662.6315	1.94260	7677.2279	1.94302	7691.8381
$\frac{1}{2}$	1.94221	7663.5434	1.94263	7678.1406	1.94304	7692.7517
$\frac{9}{16}$	1.94224	7664.4553	1.94265	7679.0534	1.94307	7693.6654
$\frac{5}{8}$	1.94227	7665.3673	1.94268	7679.9663	1.94309	7694.5791
$\frac{11}{16}$	1.94229	7666.2793	1.94271	7680.8792	1.94312	7695.4929
$\frac{3}{4}$	1.94232	7667.1914	1.94273	7681.7921	1.94314	7696.4067
$\frac{13}{16}$	1.94234	7668.1035	1.94276	7682.7051	1.94317	7697.3206
$\frac{7}{8}$	1.94237	7669.0157	1.94278	7683.6182	1.94320	7698.2345
$\frac{15}{16}$	1.94240	7669.9280	1.94281	7684.5313	1.94322	7699.1485

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94325	7700.0625	1.94366	7714.6944	1.94407	7729.3403
$\frac{1}{16}$	1.94327	7700.9766	1.94369	7715.6094	1.94410	7730.2561
$\frac{1}{8}$	1.94330	7701.8907	1.94371	7716.5244	1.94412	7731.1720
$\frac{3}{16}$	1.94332	7702.8049	1.94374	7717.4395	1.94415	7732.0879
$\frac{1}{4}$	1.94335	7703.7192	1.94376	7718.3546	1.94417	7733.0039
$\frac{5}{16}$	1.94338	7704.6335	1.94379	7719.2698	1.94420	7733.9199
$\frac{3}{8}$	1.94340	7705.5479	1.94381	7720.1850	1.94423	7734.8360
$\frac{7}{16}$	1.94343	7706.4623	1.94384	7721.1003	1.94425	7735.7522
$\frac{1}{2}$	1.94345	7707.3767	1.94387	7722.0156	1.94428	7736.6684
$\frac{9}{16}$	1.94348	7708.2913	1.94389	7722.9310	1.94430	7737.5847
$\frac{5}{8}$	1.94350	7709.2058	1.94392	7723.8465	1.94433	7738.5010
$\frac{11}{16}$	1.94353	7710.1205	1.94394	7724.7620	1.94435	7739.4173
$\frac{3}{4}$	1.94356	7711.0352	1.94397	7725.6775	1.94438	7740.3338
$\frac{13}{16}$	1.94358	7711.9499	1.94399	7726.5931	1.94441	7741.2502
$\frac{7}{8}$	1.94361	7712.8647	1.94402	7727.5088	1.94443	7742.1668
$\frac{15}{16}$	1.94363	7713.7795	1.94405	7728.4245	1.94446	7743.0834

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94448	7744.0000	1.94489	7758.6736	1.94530	7773.3611
$\frac{1}{16}$	1.94451	7744.9167	1.94492	7759.5912	1.94533	7774.2795
$\frac{1}{8}$	1.94453	7745.8334	1.94495	7760.5088	1.94536	7775.1980
$\frac{3}{16}$	1.94456	7746.7502	1.94497	7761.4265	1.94538	7776.1166
$\frac{1}{4}$	1.94459	7747.6671	1.94500	7762.3442	1.94541	7777.0352
$\frac{5}{16}$	1.94461	7748.5840	1.94502	7763.2620	1.94543	7777.9538
$\frac{3}{8}$	1.94464	7749.5010	1.94505	7764.1798	1.94546	7778.8725
$\frac{7}{16}$	1.94466	7750.4180	1.94507	7765.0977	1.94548	7779.7913
$\frac{1}{2}$	1.94469	7751.3351	1.94510	7766.0156	1.94551	7780.7101
$\frac{9}{16}$	1.94471	7752.2522	1.94512	7766.9336	1.94554	7781.6289
$\frac{5}{8}$	1.94474	7753.1694	1.94515	7767.8517	1.94556	7782.5479
$\frac{11}{16}$	1.94477	7754.0866	1.94518	7768.7698	1.94559	7783.4668
$\frac{3}{4}$	1.94479	7755.0039	1.94520	7769.6879	1.94561	7784.3859
$\frac{13}{16}$	1.94482	7755.9213	1.94523	7770.6061	1.94564	7785.3049
$\frac{7}{8}$	1.94484	7756.8387	1.94525	7771.5244	1.94566	7786.2241
$\frac{15}{16}$	1.94487	7757.7561	1.94528	7772.4427	1.94569	7787.1433

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94571	7788.0625	1.94612	7802.7778	1.94653	7817.5069
$\frac{1}{16}$	1.94574	7788.9818	1.94615	7803.6979	1.94656	7818.4280
$\frac{1}{8}$	1.94577	7789.9012	1.94618	7804.6182	1.94659	7819.3491
$\frac{3}{16}$	1.94579	7790.8206	1.94620	7805.5384	1.94661	7820.2702
$\frac{1}{4}$	1.94582	7791.7400	1.94623	7806.4588	1.94664	7821.1914
$\frac{5}{16}$	1.94584	7792.6595	1.94625	7807.3792	1.94666	7822.1127
$\frac{3}{8}$	1.94587	7793.5791	1.94628	7808.2996	1.94669	7823.0340
$\frac{7}{16}$	1.94589	7794.4987	1.94630	7809.2201	1.94671	7823.9553
$\frac{1}{2}$	1.94592	7795.4184	1.94633	7810.1406	1.94674	7824.8767
$\frac{9}{16}$	1.94595	7796.3381	1.94636	7811.0612	1.94676	7825.7982
$\frac{5}{8}$	1.94597	7797.2579	1.94638	7811.9819	1.94679	7826.7197
$\frac{11}{16}$	1.94600	7798.1778	1.94641	7812.9026	1.94682	7827.6413
$\frac{3}{4}$	1.94602	7799.0977	1.94643	7813.8234	1.94684	7828.5629
$\frac{13}{16}$	1.94605	7800.0176	1.94646	7814.7442	1.94687	7829.4846
$\frac{7}{8}$	1.94607	7800.9376	1.94648	7815.6650	1.94689	7830.4064
$\frac{15}{16}$	1.94610	7801.8577	1.94651	7816.5860	1.94692	7831.3282

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94694	7832.2500	1.94735	7847.0069	1.94776	7861.7778
1/16	1.94697	7833.1719	1.94738	7847.9297	1.94779	7862.7014
1/8	1.94699	7834.0939	1.94740	7848.8525	1.94781	7863.6251
3/16	1.94702	7835.0159	1.94743	7849.7754	1.94784	7864.5489
1/4	1.94705	7835.9379	1.94745	7850.6984	1.94786	7865.4727
5/16	1.94707	7836.8601	1.94748	7851.6213	1.94789	7866.3965
3/8	1.94710	7837.7822	1.94751	7852.5444	1.94791	7867.3204
7/16	1.94712	7838.7045	1.94753	7853.4675	1.94794	7868.2444
1/2	1.94715	7839.6267	1.94756	7854.3906	1.94796	7869.1684
9/16	1.94717	7840.5491	1.94758	7855.3138	1.94799	7870.0925
5/8	1.94720	7841.4715	1.94761	7856.2371	1.94802	7871.0166
11/16	1.94722	7842.3939	1.94763	7857.1604	1.94804	7871.9408
3/4	1.94725	7843.3164	1.94766	7858.0838	1.94807	7872.8650
13/16	1.94728	7844.2390	1.94768	7859.0072	1.94809	7873.7893
7/8	1.94730	7845.1616	1.94771	7859.9307	1.94812	7874.7137
15/16	1.94733	7846.0842	1.94773	7860.8542	1.94814	7875.6380

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94817	7876.5625	1.94858	7891.3611	1.94898	7906.1736
1/16	1.94819	7877.4870	1.94860	7892.2865	1.94901	7907.0999
1/8	1.94822	7878.4116	1.94863	7893.2119	1.94903	7908.0262
3/16	1.94824	7879.3362	1.94865	7894.1374	1.94906	7908.9525
1/4	1.94827	7880.2609	1.94868	7895.0629	1.94908	7909.8789
5/16	1.94830	7881.1856	1.94870	7895.9885	1.94911	7910.8054
3/8	1.94832	7882.1104	1.94873	7896.9142	1.94914	7911.7319
7/16	1.94835	7883.0352	1.94875	7897.8399	1.94916	7912.6584
1/2	1.94837	7883.9601	1.94878	7898.7656	1.94919	7913.5851
9/16	1.94840	7884.8850	1.94881	7899.6914	1.94921	7914.5117
5/8	1.94842	7885.8100	1.94883	7900.6173	1.94924	7915.4385
11/16	1.94845	7886.7351	1.94886	7901.5432	1.94926	7916.3653
3/4	1.94847	7887.6602	1.94888	7902.4692	1.94929	7917.2921
13/16	1.94850	7888.5853	1.94891	7903.3952	1.94931	7918.2190
7/8	1.94853	7889.5105	1.94893	7904.3213	1.94934	7919.1459
15/16	1.94855	7890.4358	1.94896	7905.2474	1.94936	7920.0729



# 89'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.94939	7921.0000	1.94980	7935.8403	1.95020	7950.6944
$\frac{1}{16}$	1.94942	7921.9271	1.94982	7936.7683	1.95023	7951.6233
$\frac{1}{8}$	1.94944	7922.8543	1.94985	7937.6963	1.95025	7952.5522
$\frac{3}{16}$	1.94947	7923.7815	1.94987	7938.6244	1.95028	7953.4811
$\frac{1}{4}$	1.94949	7924.7088	1.94990	7939.5525	1.95030	7954.4102
$\frac{5}{16}$	1.94952	7925.6361	1.94992	7940.4807	1.95033	7955.3392
$\frac{3}{8}$	1.94954	7926.5635	1.94995	7941.4090	1.95035	7956.2683
$\frac{7}{16}$	1.94957	7927.4909	1.94997	7942.3373	1.95038	7957.1975
$\frac{1}{2}$	1.94959	7928.4184	1.95000	7943.2656	1.95041	7958.1267
$\frac{9}{16}$	1.94962	7929.3459	1.95002	7944.1940	1.95043	7959.0560
$\frac{5}{8}$	1.94964	7930.2735	1.95005	7945.1225	1.95046	7959.9854
$\frac{11}{16}$	1.94967	7931.2012	1.95008	7946.0510	1.95048	7960.9147
$\frac{3}{4}$	1.94969	7932.1289	1.95010	7946.9796	1.95051	7961.8442
$\frac{13}{16}$	1.94972	7933.0567	1.95013	7947.9082	1.95053	7962.7737
$\frac{7}{8}$	1.94975	7933.9845	1.95015	7948.8369	1.95056	7963.7032
$\frac{15}{16}$	1.94977	7934.9124	1.95018	7949.7657	1.95058	7964.6328

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95061	7965.5625	1.95101	7980.4444	1.95142	7995.3403
$\frac{1}{16}$	1.95063	7966.4922	1.95104	7981.3750	1.95144	7996.2717
$\frac{1}{8}$	1.95066	7967.4220	1.95106	7982.3057	1.95147	7997.2032
$\frac{3}{16}$	1.95068	7968.3518	1.95109	7983.2364	1.95149	7998.1348
$\frac{1}{4}$	1.95071	7969.2817	1.95111	7984.1671	1.95152	7999.0664
$\frac{5}{16}$	1.95073	7970.2116	1.95114	7985.0979	1.95154	7999.9981
$\frac{3}{8}$	1.95076	7971.1416	1.95117	7986.0288	1.95157	8000.9298
$\frac{7}{16}$	1.95079	7972.0716	1.95119	7986.9597	1.95160	8001.8616
$\frac{1}{2}$	1.95081	7973.0017	1.95122	7987.8906	1.95162	8002.7934
$\frac{9}{16}$	1.95084	7973.9319	1.95124	7988.8216	1.95165	8003.7253
$\frac{5}{8}$	1.95086	7974.8621	1.95127	7989.7527	1.95167	8004.6572
$\frac{11}{16}$	1.95089	7975.7923	1.95129	7990.6838	1.95170	8005.5892
$\frac{3}{4}$	1.95091	7976.7227	1.95132	7991.6150	1.95172	8006.5213
$\frac{13}{16}$	1.95094	7977.6530	1.95134	7992.5463	1.95175	8007.4534
$\frac{7}{8}$	1.95096	7978.5834	1.95137	7993.4775	1.95177	8008.3855
$\frac{15}{16}$	1.95099	7979.5139	1.95139	7994.4089	1.95180	8009.3177

# 89'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95182	8010.2500	1.95228	8035.1736	1.95263	8040.1111
1/16	1.95185	8011.1823	1.95225	8026.1068	1.95266	8041.0452
1/8	1.95187	8012.1147	1.95228	8027.0400	1.95268	8041.9793
3/16	1.95190	8013.0471	1.95230	8027.9733	1.95271	8042.9134
1/4	1.95192	8013.9796	1.95233	8028.9067	1.95273	8043.8477
5/16	1.95195	8014.9121	1.95235	8029.8401	1.95276	8044.7819
3/8	1.95197	8015.8447	1.95238	8030.7735	1.95278	8045.7163
7/16	1.95200	8016.7774	1.95240	8031.7071	1.95281	8046.6506
1/2	1.95203	8017.7101	1.95243	8032.6406	1.95283	8047.5851
9/16	1.95205	8018.6428	1.95245	8033.5742	1.95286	8048.5196
5/8	1.95208	8019.5756	1.95248	8034.5079	1.95288	8049.4541
11/16	1.95210	8020.5085	1.95250	8035.4417	1.95291	8050.3887
3/4	1.95213	8021.4414	1.95253	8036.3754	1.95293	8051.3234
13/16	1.95215	8022.3744	1.95256	8037.3093	1.95296	8052.2581
7/8	1.95218	8023.3074	1.95258	8038.2432	1.95298	8053.1928
15/16	1.95220	8024.2405	1.95261	8039.1771	1.95301	8054.1276

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95303	8055.0625	1.95344	8070.0278	1.95384	8085.0069
1/16	1.95306	8055.9974	1.95346	8070.9636	1.95387	8085.9436
1/8	1.95308	8056.9324	1.95349	8071.8994	1.95389	8086.8803
3/16	1.95311	8057.8674	1.95351	8072.8353	1.95392	8087.8171
1/4	1.95314	8058.8025	1.95354	8073.7713	1.95394	8088.7539
5/16	1.95316	8059.7377	1.95356	8074.7073	1.95397	8089.6908
3/8	1.95319	8060.6729	1.95359	8075.6433	1.95399	8090.6277
7/16	1.95321	8061.6081	1.95361	8076.5795	1.95402	8091.5647
1/2	1.95324	8062.5434	1.95364	8077.5156	1.95404	8092.5017
9/16	1.95326	8063.4788	1.95366	8078.4519	1.95407	8093.4388
5/8	1.95329	8064.4142	1.95369	8079.3881	1.95409	8094.3760
11/16	1.95331	8065.3496	1.95371	8080.3245	1.95412	8095.3132
3/4	1.95334	8066.2852	1.95374	8081.2609	1.95414	8096.2504
13/16	1.95336	8067.2207	1.95376	8082.1973	1.95417	8097.1877
7/8	1.95339	8068.1564	1.95379	8083.1338	1.95419	8098.1251
15/16	1.95341	8069.0920	1.95382	8084.0703	1.95422	8099.0625

90'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95424	8100.0000	1.95464	8115.0069	1.95505	8130.0278
1/16	1.95427	8100.9375	1.95467	8115.9453	1.95507	8130.9670
1/8	1.95429	8101.8751	1.95469	8116.8838	1.95510	8131.9064
3/16	1.95432	8102.8127	1.95472	8117.8223	1.95512	8132.8457
1/4	1.95434	8103.7504	1.95474	8118.7609	1.95515	8133.7852
5/16	1.95437	8104.6882	1.95477	8119.6995	1.95517	8134.7246
3/8	1.95439	8105.6260	1.95480	8120.6381	1.95520	8135.6642
7/16	1.95442	8106.5638	1.95482	8121.5769	1.95522	8136.6038
1/2	1.95444	8107.5017	1.95485	8122.5156	1.95525	8137.5434
9/16	1.95447	8108.4397	1.95487	8123.4545	1.95527	8138.4831
5/8	1.95449	8109.3777	1.95490	8124.3933	1.95530	8139.4229
11/16	1.95452	8110.3158	1.95492	8125.3323	1.95532	8140.3627
3/4	1.95454	8111.2539	1.95495	8126.2713	1.95535	8141.3025
13/16	1.95457	8112.1921	1.95497	8127.2103	1.95537	8142.2424
7/8	1.95459	8113.1303	1.95500	8128.1494	1.95540	8143.1824
15/16	1.95462	8114.0686	1.95502	8129.0886	1.95542	8144.1224
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
1	1.95545	8145.0625	1.95585	8160.1111	1.95625	8175.1736
1/16	1.95547	8146.0026	1.95587	8161.0521	1.95627	8176.1155
1/8	1.95550	8146.9428	1.95590	8161.9932	1.95630	8177.0574
3/16	1.95552	8147.8831	1.95592	8162.9343	1.95632	8177.9994
1/4	1.95555	8148.8234	1.95595	8163.8754	1.95635	8178.9414
5/16	1.95557	8149.7637	1.95597	8164.8167	1.95637	8179.8835
3/8	1.95560	8150.7041	1.95600	8165.7579	1.95640	8180.8256
7/16	1.95562	8151.6446	1.95602	8166.6992	1.95642	8181.7678
1/2	1.95565	8152.5851	1.95605	8167.6406	1.95645	8182.7101
9/16	1.95567	8153.5256	1.95607	8168.5821	1.95647	8183.6524
5/8	1.95570	8154.4663	1.95610	8169.5235	1.95650	8184.5947
11/16	1.95572	8155.4069	1.95612	8170.4651	1.95652	8185.5371
3/4	1.95575	8156.3477	1.95615	8171.4067	1.95655	8186.4796
13/16	1.95577	8157.2884	1.95617	8172.3483	1.95657	8187.4221
7/8	1.95580	8158.2293	1.95620	8173.2900	1.95660	8188.3647
15/16	1.95582	8159.1702	1.95622	8174.2318	1.95662	8189.3073

# 90'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95665	8190.2500	1.95705	8205.3403	1.95745	8220.4444
1/16	1.95667	8191.1927	1.95707	8206.2839	1.95747	8221.3889
1/8	1.95670	8192.1355	1.95710	8207.2275	1.95750	8222.3334
3/16	1.95672	8193.0784	1.95712	8208.1713	1.95752	8223.2780
1/4	1.95675	8194.0213	1.95715	8209.1150	1.95755	8224.2227
5/16	1.95677	8194.9642	1.95717	8210.0588	1.95757	8225.1673
3/8	1.95680	8195.9072	1.95720	8211.0027	1.95760	8226.1121
7/16	1.95682	8196.8503	1.95722	8211.9466	1.95762	8227.0569
1/2	1.95685	8197.7934	1.95725	8212.8906	1.95765	8228.0017
9/16	1.95687	8198.7366	1.95727	8213.8347	1.95767	8228.9466
5/8	1.95690	8199.6798	1.95730	8214.7788	1.95770	8229.8916
11/16	1.95692	8200.6231	1.95732	8215.7229	1.95772	8230.8366
3/4	1.95695	8201.5664	1.95735	8216.6671	1.95775	8231.7817
13/16	1.95697	8202.5098	1.95737	8217.6114	1.95777	8232.7268
7/8	1.95700	8203.4532	1.95740	8218.5557	1.95780	8233.6720
15/16	1.95702	8204.3967	1.95742	8219.5000	1.95782	8234.6172

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95785	8235.5625	1.95825	8250.6044	1.95864	8265.8403
1/16	1.95787	8236.5078	1.95827	8251.6407	1.95867	8266.7874
1/8	1.95790	8237.4532	1.95830	8252.5869	1.95869	8267.7345
3/16	1.95792	8238.3987	1.95832	8253.5332	1.95872	8268.6817
1/4	1.95795	8239.3442	1.95834	8254.4796	1.95874	8269.6289
5/16	1.95797	8240.2897	1.95837	8255.4260	1.95877	8270.5762
3/8	1.95800	8241.2354	1.95839	8256.3725	1.95879	8271.5235
7/16	1.95802	8242.1810	1.95842	8257.3190	1.95882	8272.4709
1/2	1.95805	8243.1267	1.95844	8258.2656	1.95884	8273.4184
9/16	1.95807	8244.0725	1.95847	8259.2123	1.95887	8274.3659
5/8	1.95810	8245.0183	1.95849	8260.1590	1.95889	8275.3135
11/16	1.95812	8245.9642	1.95852	8261.1057	1.95892	8276.2611
3/4	1.95815	8246.9102	1.95854	8262.0525	1.95894	8277.2088
13/16	1.95817	8247.8561	1.95857	8262.9994	1.95897	8278.1565
7/8	1.95820	8248.8022	1.95859	8263.9463	1.95899	8279.1043
15/16	1.95822	8249.7483	1.95862	8264.8933	1.95902	8280.0521

Fraction of an inch	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.95904	8281.0000	1.95944	8296.1736	1.95984	8311.3611
$\frac{1}{16}$	1.95907	8281.9479	1.95946	8297.1224	1.95986	8312.3108
$\frac{1}{8}$	1.95909	8282.8959	1.95949	8298.0713	1.95989	8313.2605
$\frac{3}{16}$	1.95912	8283.8440	1.95951	8299.0202	1.95991	8314.2103
$\frac{1}{4}$	1.95914	8284.7921	1.95954	8299.9692	1.95994	8315.1602
$\frac{5}{16}$	1.95917	8285.7403	1.95956	8300.9182	1.95996	8316.1101
$\frac{3}{8}$	1.95919	8286.6885	1.95959	8301.8673	1.95998	8317.0600
$\frac{7}{16}$	1.95922	8287.6367	1.95961	8302.8164	1.96001	8318.0100
$\frac{1}{2}$	1.95924	8288.5851	1.95964	8303.7656	1.96003	8318.9601
$\frac{9}{16}$	1.95927	8289.5334	1.95966	8304.7149	1.96006	8319.9102
$\frac{5}{8}$	1.95929	8290.4819	1.95969	8305.6642	1.96008	8320.8604
$\frac{11}{16}$	1.95931	8291.4304	1.95971	8306.6135	1.96011	8321.8106
$\frac{3}{4}$	1.95934	8292.3789	1.95974	8307.5629	1.96013	8322.7609
$\frac{13}{16}$	1.95936	8293.3275	1.95976	8308.5124	1.96016	8323.7112
$\frac{7}{8}$	1.95939	8294.2762	1.95979	8309.4619	1.96018	8324.6616
$\frac{15}{16}$	1.95941	8295.2249	1.95981	8310.4115	1.96021	8325.6120

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96023	8326.5625	1.96068	8341.7778	1.96103	8357.0069
$\frac{1}{16}$	1.96026	8327.5130	1.96065	8342.7292	1.96105	8357.9592
$\frac{1}{8}$	1.96028	8328.4637	1.96068	8343.6807	1.96107	8358.9116
$\frac{3}{16}$	1.96031	8329.4143	1.96070	8344.6322	1.96110	8359.8640
$\frac{1}{4}$	1.96033	8330.3650	1.96073	8345.5838	1.96112	8360.8164
$\frac{5}{16}$	1.96036	8331.3158	1.96075	8346.5354	1.96115	8361.7689
$\frac{3}{8}$	1.96038	8332.2666	1.96078	8347.4871	1.96117	8362.7215
$\frac{7}{16}$	1.96041	8333.2175	1.96080	8348.4388	1.96120	8363.6741
$\frac{1}{2}$	1.96043	8334.1684	1.96083	8349.3906	1.96122	8364.6267
$\frac{9}{16}$	1.96046	8335.1194	1.96085	8350.3425	1.96125	8365.5795
$\frac{5}{8}$	1.96048	8336.0704	1.96088	8351.2944	1.96127	8366.5322
$\frac{11}{16}$	1.96051	8337.0215	1.96090	8352.2463	1.96130	8367.4851
$\frac{3}{4}$	1.96053	8337.9727	1.96093	8353.1984	1.96132	8368.4379
$\frac{13}{16}$	1.96056	8338.9239	1.96095	8354.1504	1.96135	8369.3909
$\frac{7}{8}$	1.96058	8339.8751	1.96098	8355.1025	1.96137	8370.3439
$\frac{15}{16}$	1.96060	8340.8264	1.96100	8356.0547	1.96140	8371.2969

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96142	8372.2500	1.96182	8387.5069	1.96221	8402.7778
$\frac{1}{16}$	1.96145	8373.2032	1.96184	8388.4610	1.96224	8403.7327
$\frac{1}{8}$	1.96147	8374.1564	1.96187	8389.4150	1.96226	8404.6876
$\frac{3}{16}$	1.96150	8375.1096	1.96189	8390.3692	1.96229	8405.6426
$\frac{1}{4}$	1.96152	8376.0629	1.96192	8391.3234	1.96231	8406.5977
$\frac{5}{16}$	1.96154	8377.0163	1.96194	8392.2776	1.96233	8407.5528
$\frac{3}{8}$	1.96157	8377.9697	1.96196	8393.2319	1.96236	8408.5079
$\frac{7}{16}$	1.96159	8378.9232	1.96199	8394.1862	1.96238	8409.4631
$\frac{1}{2}$	1.96162	8379.8767	1.96201	8395.1406	1.96241	8410.4184
$\frac{9}{16}$	1.96164	8380.8303	1.96204	8396.0951	1.96243	8411.3737
$\frac{5}{8}$	1.96167	8381.7840	1.96206	8397.0496	1.96246	8412.3291
$\frac{11}{16}$	1.96169	8382.7377	1.96209	8398.0042	1.96248	8413.2845
$\frac{3}{4}$	1.96172	8383.6914	1.96211	8398.9588	1.96251	8414.2400
$\frac{13}{16}$	1.96174	8384.6452	1.96214	8399.9134	1.96253	8415.1956
$\frac{7}{8}$	1.96177	8385.5991	1.96216	8400.8682	1.96256	8416.1512
$\frac{15}{16}$	1.96179	8386.5530	1.96219	8401.8229	1.96258	8417.1068

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96261	8418.0625	1.96300	8433.3611	1.96339	8448.6736
$\frac{1}{16}$	1.96263	8419.0183	1.96302	8434.3177	1.96342	8449.6311
$\frac{1}{8}$	1.96266	8419.9741	1.96305	8435.2744	1.96344	8450.5887
$\frac{3}{16}$	1.96268	8420.9299	1.96307	8436.2311	1.96347	8451.5463
$\frac{1}{4}$	1.96270	8421.8859	1.96310	8437.1879	1.96349	8452.5039
$\frac{5}{16}$	1.96273	8422.8418	1.96312	8438.1448	1.96352	8453.4616
$\frac{3}{8}$	1.96275	8423.7979	1.96315	8439.1017	1.96354	8454.4194
$\frac{7}{16}$	1.96278	8424.7539	1.96317	8440.0586	1.96357	8455.3772
$\frac{1}{2}$	1.96280	8425.7101	1.96320	8441.0156	1.96359	8456.3351
$\frac{9}{16}$	1.96283	8426.6663	1.96322	8441.9727	1.96362	8457.2930
$\frac{5}{8}$	1.96285	8427.6225	1.96325	8442.9298	1.96364	8458.2510
$\frac{11}{16}$	1.96288	8428.5788	1.96327	8443.8870	1.96366	8459.2090
$\frac{3}{4}$	1.96290	8429.5352	1.96330	8444.8442	1.96369	8460.1671
$\frac{13}{16}$	1.96293	8430.4916	1.96332	8445.8015	1.96371	8461.1252
$\frac{7}{8}$	1.96295	8431.4480	1.96335	8446.7588	1.96374	8462.0834
$\frac{15}{16}$	1.96298	8432.4045	1.96337	8447.7162	1.96376	8463.0417

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96379	8464.0000	1.96418	8479.3403	1.96457	8494.6944
$\frac{1}{16}$	1.96381	8464.9584	1.96421	8480.2995	1.96460	8495.6545
$\frac{1}{8}$	1.96384	8465.9168	1.96423	8481.2588	1.96462	8496.6147
$\frac{3}{16}$	1.96386	8466.8752	1.96425	8482.2181	1.96465	8497.5749
$\frac{1}{4}$	1.96389	8467.8338	1.96428	8483.1775	1.96467	8498.5352
$\frac{5}{16}$	1.96391	8468.7923	1.96430	8484.1370	1.96470	8499.4955
$\frac{3}{8}$	1.96394	8469.7510	1.96433	8485.0965	1.96472	8500.4558
$\frac{7}{16}$	1.96396	8470.7097	1.96435	8486.0560	1.96475	8501.4163
$\frac{1}{2}$	1.96398	8471.6684	1.96438	8487.0156	1.96477	8502.3767
$\frac{9}{16}$	1.96401	8472.6272	1.96440	8487.9753	1.96479	8503.3373
$\frac{5}{8}$	1.96403	8473.5860	1.96443	8488.9350	1.96482	8504.2979
$\frac{11}{16}$	1.96406	8474.5449	1.96445	8489.8948	1.96484	8505.2585
$\frac{3}{4}$	1.96408	8475.5039	1.96448	8490.8546	1.96487	8506.2192
$\frac{13}{16}$	1.96411	8476.4629	1.96450	8491.8145	1.96489	8507.1799
$\frac{7}{8}$	1.96413	8477.4220	1.96452	8492.7744	1.96492	8508.1407
$\frac{15}{16}$	1.96416	8478.3811	1.96455	8493.7344	1.96494	8509.1016

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96497	8510.0625	1.96536	8525.4444	1.96575	8540.8403
$\frac{1}{16}$	1.96499	8511.0235	1.96538	8526.4063	1.96577	8541.8030
$\frac{1}{8}$	1.96502	8511.9845	1.96541	8527.3682	1.96580	8542.7657
$\frac{3}{16}$	1.96504	8512.9456	1.96543	8528.3301	1.96582	8543.7285
$\frac{1}{4}$	1.96506	8513.9067	1.96546	8529.2921	1.96585	8544.6914
$\frac{5}{16}$	1.96509	8514.8679	1.96548	8530.2542	1.96587	8545.6543
$\frac{3}{8}$	1.96511	8515.8291	1.96551	8531.2163	1.96590	8546.6173
$\frac{7}{16}$	1.96514	8516.7904	1.96553	8532.1784	1.96592	8547.5803
$\frac{1}{2}$	1.96516	8517.7517	1.96555	8533.1406	1.96595	8548.5434
$\frac{9}{16}$	1.96519	8518.7131	1.96558	8534.1029	1.96597	8549.5065
$\frac{5}{8}$	1.96521	8519.6746	1.96560	8535.0652	1.96599	8550.4697
$\frac{11}{16}$	1.96524	8520.6361	1.96563	8536.0276	1.96602	8551.4330
$\frac{3}{4}$	1.96526	8521.5977	1.96565	8536.9900	1.96604	8552.3963
$\frac{13}{16}$	1.96529	8522.5593	1.96568	8537.9525	1.96607	8553.3596
$\frac{7}{8}$	1.96531	8523.5209	1.96570	8538.9150	1.96609	8554.3230
$\frac{15}{16}$	1.96533	8524.4827	1.96573	8539.8776	1.96612	8555.2865

# 92'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96614	8556.2500	1.96653	8571.6786	1.96692	8587.1111
$\frac{1}{16}$	1.96617	8557.2136	1.96656	8572.6880	1.96695	8588.0764
$\frac{1}{8}$	1.96619	8558.1772	1.96658	8573.6025	1.96697	8589.0418
$\frac{3}{16}$	1.96622	8559.1409	1.96661	8574.5671	1.96700	8590.0072
$\frac{1}{4}$	1.96624	8560.1046	1.96663	8575.5317	1.96702	8590.9727
$\frac{5}{16}$	1.96626	8561.0684	1.96665	8576.4963	1.96705	8591.9382
$\frac{3}{8}$	1.96629	8562.0322	1.96668	8577.4610	1.96707	8592.9038
$\frac{7}{16}$	1.96631	8562.9961	1.96670	8578.4258	1.96709	8593.8694
$\frac{1}{2}$	1.96634	8563.9601	1.96673	8579.3906	1.96712	8594.8351
$\frac{9}{16}$	1.96636	8564.9241	1.96675	8580.3555	1.96714	8595.8008
$\frac{5}{8}$	1.96639	8565.8881	1.96678	8581.3204	1.96717	8596.7666
$\frac{11}{16}$	1.96641	8566.8522	1.96680	8582.2854	1.96719	8597.7324
$\frac{3}{4}$	1.96644	8567.8164	1.96683	8583.2504	1.96722	8598.6984
$\frac{13}{16}$	1.96646	8568.7806	1.96685	8584.2155	1.96724	8599.6643
$\frac{7}{8}$	1.96648	8569.7449	1.96687	8585.1807	1.96727	8600.6303
$\frac{15}{16}$	1.96651	8570.7092	1.96690	8586.1459	1.96729	8601.5964

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96731	8602.5625	1.96770	8618.0278	1.96809	8633.5069
$\frac{1}{16}$	1.96734	8603.5287	1.96773	8618.9948	1.96812	8634.4749
$\frac{1}{8}$	1.96736	8604.4949	1.96775	8619.9619	1.96814	8635.4428
$\frac{3}{16}$	1.96739	8605.4612	1.96778	8620.9291	1.96817	8636.4108
$\frac{1}{4}$	1.96741	8606.4275	1.96780	8621.8963	1.96819	8637.3789
$\frac{5}{16}$	1.96744	8607.3939	1.96783	8622.8635	1.96822	8638.3470
$\frac{3}{8}$	1.96746	8608.3604	1.96785	8623.8308	1.96824	8639.3152
$\frac{7}{16}$	1.96748	8609.3269	1.96787	8624.7982	1.96826	8640.2834
$\frac{1}{2}$	1.96751	8610.2934	1.96790	8625.7656	1.96829	8641.2517
$\frac{9}{16}$	1.96753	8611.2600	1.96792	8626.7331	1.96831	8642.2201
$\frac{5}{8}$	1.96756	8612.2267	1.96795	8627.7006	1.96834	8643.1885
$\frac{11}{16}$	1.96758	8613.1934	1.96797	8628.6682	1.96836	8644.1569
$\frac{3}{4}$	1.96761	8614.1602	1.96800	8629.6359	1.96839	8645.1254
$\frac{13}{16}$	1.96763	8615.1270	1.96802	8630.6035	1.96841	8646.0940
$\frac{7}{8}$	1.96766	8616.0939	1.96804	8631.5713	1.96843	8647.0626
$\frac{15}{16}$	1.96768	8617.0608	1.96807	8632.5391	1.96846	8648.0313



Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96848	8649.0000	1.96887	8664.5069	1.96926	8680.0278
1/16	1.96851	8649.9688	1.96890	8665.4766	1.96928	8680.9983
1/8	1.96853	8650.9376	1.96892	8666.4463	1.96931	8681.9689
3/16	1.96856	8651.9065	1.96894	8667.4160	1.96933	8682.9395
1/4	1.96858	8652.8754	1.96897	8668.3859	1.96936	8683.9102
5/16	1.96860	8653.8444	1.96899	8669.3557	1.96938	8684.8809
3/8	1.96863	8654.8135	1.96902	8670.3256	1.96941	8685.8517
7/16	1.96865	8655.7826	1.96904	8671.2956	1.96943	8686.8225
1/2	1.96868	8656.7517	1.96907	8672.2656	1.96945	8687.7934
9/16	1.96870	8657.7209	1.96909	8673.2357	1.96948	8688.7644
5/8	1.96873	8658.6902	1.96911	8674.2058	1.96950	8689.7354
11/16	1.96875	8659.6595	1.96914	8675.1760	1.96953	8690.7064
3/4	1.96877	8660.6289	1.96916	8676.1463	1.96955	8691.6775
13/16	1.96880	8661.5983	1.96919	8677.1166	1.96958	8692.6487
7/8	1.96882	8662.5678	1.96921	8678.0869	1.96960	8693.6199
15/16	1.96885	8663.5374	1.96924	8679.0573	1.96962	8694.5912
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.96964	8695.5625	1.97004	8711.1111	1.97042	8726.6736
1/16	1.96967	8696.5339	1.97006	8712.0834	1.97045	8727.6467
1/8	1.96970	8697.5053	1.97009	8713.0557	1.97047	8728.6199
3/16	1.96972	8698.4768	1.97011	8714.0280	1.97050	8729.5931
1/4	1.96975	8699.4484	1.97013	8715.0004	1.97052	8730.5664
5/16	1.96977	8700.4199	1.97016	8715.9729	1.97055	8731.5397
3/8	1.96979	8701.3916	1.97018	8716.9454	1.97057	8732.5131
7/16	1.96982	8702.3633	1.97021	8717.9180	1.97059	8733.4866
1/2	1.96984	8703.3351	1.97023	8718.8906	1.97062	8734.4601
9/16	1.96987	8704.3069	1.97025	8719.8633	1.97064	8735.4336
5/8	1.96989	8705.2788	1.97028	8720.8360	1.97067	8736.4072
11/16	1.96992	8706.2507	1.97030	8721.8088	1.97069	8737.3809
3/4	1.96994	8707.2227	1.97033	8722.7817	1.97071	8738.3546
13/16	1.96996	8708.1947	1.97035	8723.7546	1.97074	8739.3284
7/8	1.96999	8709.1668	1.97038	8724.7275	1.97076	8740.3022
15/16	1.97001	8710.1389	1.97040	8725.7005	1.97079	8741.2761

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97081	8742.2500	1.97120	8757.8403	1.97159	8773.4444
$\frac{1}{16}$	1.97084	8743.2240	1.97122	8758.8151	1.97161	8774.4202
$\frac{1}{8}$	1.97086	8744.1980	1.97125	8759.7900	1.97163	8775.3959
$\frac{3}{16}$	1.97088	8745.1721	1.97127	8760.7650	1.97166	8776.3718
$\frac{1}{4}$	1.97091	8746.1463	1.97130	8761.7400	1.97168	8777.3477
$\frac{5}{16}$	1.97093	8747.1205	1.97132	8762.7151	1.97171	8778.3236
$\frac{3}{8}$	1.97096	8748.0947	1.97134	8763.6902	1.97173	8779.2996
$\frac{7}{16}$	1.97098	8749.0690	1.97137	8764.6654	1.97175	8780.2756
$\frac{1}{2}$	1.97101	8750.0434	1.97139	8765.6406	1.97178	8781.2517
$\frac{9}{16}$	1.97103	8751.0178	1.97142	8766.6159	1.97180	8782.2279
$\frac{5}{8}$	1.97105	8751.9923	1.97144	8767.5913	1.97183	8783.2041
$\frac{11}{16}$	1.97108	8752.9668	1.97146	8768.5667	1.97185	8784.1804
$\frac{3}{4}$	1.97110	8753.9414	1.97149	8769.5421	1.97187	8785.1567
$\frac{13}{16}$	1.97113	8754.9160	1.97151	8770.5176	1.97190	8786.1331
$\frac{7}{8}$	1.97115	8755.8907	1.97154	8771.4932	1.97192	8787.1095
$\frac{15}{16}$	1.97117	8756.8655	1.97156	8772.4688	1.97195	8788.0860

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97197	8789.0625	1.97236	8804.6044	1.97274	8820.3403
$\frac{1}{16}$	1.97200	8790.0391	1.97238	8805.6719	1.97277	8821.3186
$\frac{1}{8}$	1.97202	8791.0157	1.97241	8806.6494	1.97279	8822.2970
$\frac{3}{16}$	1.97204	8791.9924	1.97243	8807.6270	1.97281	8823.2754
$\frac{1}{4}$	1.97207	8792.9692	1.97245	8808.6046	1.97284	8824.2539
$\frac{5}{16}$	1.97209	8793.9460	1.97248	8809.5823	1.97286	8825.2324
$\frac{3}{8}$	1.97212	8794.9229	1.97250	8810.5600	1.97289	8826.2110
$\frac{7}{16}$	1.97214	8795.8998	1.97253	8811.5378	1.97291	8827.1897
$\frac{1}{2}$	1.97216	8796.8767	1.97255	8812.5156	1.97294	8828.1684
$\frac{9}{16}$	1.97219	8797.8538	1.97257	8813.4935	1.97296	8829.1472
$\frac{5}{8}$	1.97221	8798.8308	1.97260	8814.4715	1.97298	8830.1260
$\frac{11}{16}$	1.97224	8799.8080	1.97262	8815.4495	1.97301	8831.1048
$\frac{3}{4}$	1.97226	8800.7852	1.97265	8816.4275	1.97303	8832.0838
$\frac{13}{16}$	1.97228	8801.7624	1.97267	8817.4056	1.97306	8833.0627
$\frac{7}{8}$	1.97231	8802.7397	1.97269	8818.3838	1.97308	8834.0418
$\frac{15}{16}$	1.97233	8803.7170	1.97272	8819.3620	1.97310	8835.0209

# 94'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97313	8836.0000	1.97351	8851.6736	1.97390	8867.3611
1/16	1.97315	8836.9792	1.97354	8852.6537	1.97392	8868.3420
1/8	1.97318	8837.9584	1.97356	8853.6338	1.97395	8869.3230
3/16	1.97320	8838.9377	1.97358	8854.6140	1.97397	8870.3041
1/4	1.97322	8839.9171	1.97361	8855.5942	1.97399	8871.2852
5/16	1.97325	8840.8965	1.97363	8856.5745	1.97402	8872.2663
3/8	1.97327	8841.8760	1.97366	8857.5548	1.97404	8873.2475
7/16	1.97330	8842.8555	1.97368	8858.5352	1.97407	8874.2288
1/2	1.97332	8843.8351	1.97370	8859.5156	1.97409	8875.2101
9/16	1.97334	8844.8147	1.97373	8860.4961	1.97411	8876.1914
5/8	1.97337	8845.7944	1.97375	8861.4767	1.97414	8877.1729
11/16	1.97339	8846.7741	1.97378	8862.4573	1.97416	8878.1543
3/4	1.97342	8847.7539	1.97380	8863.4379	1.97419	8879.1359
13/16	1.97344	8848.7338	1.97383	8864.4186	1.97421	8880.1174
7/8	1.97346	8849.7137	1.97385	8865.3994	1.97423	8881.0991
15/16	1.97349	8850.6936	1.97387	8866.3802	1.97426	8882.0808
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97428	8883.0625	1.97467	8898.7778	1.97505	8914.5069
1/16	1.97431	8884.0443	1.97469	8899.7604	1.97507	8915.4905
1/8	1.97433	8885.0262	1.97471	8900.7432	1.97510	8916.4741
3/16	1.97435	8886.0081	1.97474	8901.7259	1.97512	8917.4577
1/4	1.97438	8886.9900	1.97476	8902.7088	1.97514	8918.4414
5/16	1.97440	8887.9720	1.97479	8903.6917	1.97517	8919.4252
3/8	1.97443	8888.9541	1.97481	8904.6746	1.97519	8920.4090
7/16	1.97445	8889.9362	1.97483	8905.6576	1.97522	8921.3928
1/2	1.97447	8890.9184	1.97486	8906.6406	1.97524	8922.3767
9/16	1.97450	8891.9006	1.97488	8907.6237	1.97526	8923.3607
5/8	1.97452	8892.8829	1.97490	8908.6069	1.97529	8924.3447
11/16	1.97455	8893.8653	1.97493	8909.5901	1.97531	8925.3288
3/4	1.97457	8894.8477	1.97495	8910.5734	1.97534	8926.3129
13/16	1.97459	8895.8301	1.97498	8911.5567	1.97536	8927.2971
7/8	1.97462	8896.8126	1.97500	8912.5400	1.97538	8928.2814
15/16	1.97464	8897.7952	1.97502	8913.5235	1.97541	8929.2657

# 94'

Fraction of an inch	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97543	8930.2500	1.97581	8946.0069	1.97620	8961.7778
$\frac{1}{16}$	1.97546	8931.2344	1.97584	8946.9922	1.97622	8962.7639
$\frac{1}{8}$	1.97548	8932.2189	1.97586	8947.9775	1.97624	8963.7501
$\frac{3}{16}$	1.97550	8933.2034	1.97589	8948.9629	1.97627	8964.7364
$\frac{1}{4}$	1.97553	8934.1879	1.97591	8949.9484	1.97629	8965.7227
$\frac{5}{16}$	1.97555	8935.1726	1.97593	8950.9338	1.97632	8966.7090
$\frac{3}{8}$	1.97558	8936.1572	1.97596	8951.9194	1.97634	8967.6954
$\frac{7}{16}$	1.97560	8937.1420	1.97598	8952.9050	1.97636	8968.6819
$\frac{1}{2}$	1.97562	8938.1267	1.97601	8953.8906	1.97639	8969.6684
$\frac{9}{16}$	1.97565	8939.1116	1.97603	8954.8763	1.97641	8970.6550
$\frac{5}{8}$	1.97567	8940.0965	1.97605	8955.8621	1.97644	8971.6416
$\frac{11}{16}$	1.97570	8941.0814	1.97608	8956.8479	1.97646	8972.6283
$\frac{3}{4}$	1.97572	8942.0664	1.97610	8957.8338	1.97648	8973.6150
$\frac{13}{16}$	1.97574	8943.0515	1.97613	8958.8197	1.97651	8974.6018
$\frac{7}{8}$	1.97577	8944.0366	1.97615	8959.8057	1.97653	8975.5887
$\frac{15}{16}$	1.97579	8945.0217	1.97617	8960.7917	1.97656	8976.5755

Fraction of an inch	9"		10"		11"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97658	8977.5625	1.97696	8993.3611	1.97734	9009.1736
$\frac{1}{16}$	1.97660	8978.5495	1.97698	8994.3490	1.97737	9010.1624
$\frac{1}{8}$	1.97663	8979.5366	1.97701	8995.3369	1.97739	9011.1512
$\frac{3}{16}$	1.97665	8980.5237	1.97703	8996.3249	1.97741	9012.1400
$\frac{1}{4}$	1.97667	8981.5109	1.97706	8997.3129	1.97744	9013.1289
$\frac{5}{16}$	1.97670	8982.4981	1.97708	8998.3010	1.97746	9014.1179
$\frac{3}{8}$	1.97672	8983.4854	1.97710	8999.2892	1.97749	9015.1069
$\frac{7}{16}$	1.97675	8984.4727	1.97713	9000.2774	1.97751	9016.0959
$\frac{1}{2}$	1.97677	8985.4601	1.97715	9001.2656	1.97753	9017.0851
$\frac{9}{16}$	1.97679	8986.4475	1.97718	9002.2539	1.97756	9018.0742
$\frac{5}{8}$	1.97682	8987.4350	1.97720	9003.2423	1.97758	9019.0635
$\frac{11}{16}$	1.97684	8988.4226	1.97722	9004.2307	1.97760	9020.0528
$\frac{3}{4}$	1.97687	8989.4102	1.97725	9005.2192	1.97763	9021.0421
$\frac{13}{16}$	1.97689	8990.3978	1.97727	9006.2077	1.97765	9022.0315
$\frac{7}{8}$	1.97691	8991.3855	1.97729	9007.1963	1.97768	9023.0209
$\frac{15}{16}$	1.97694	8992.3733	1.97732	9008.1849	1.97770	9024.0104

# 95'

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97772	9025.0000	1.97810	9040.8403	1.97848	9056.6944
1/16	1.97775	9025.9896	1.97813	9041.8308	1.97851	9057.6858
1/8	1.97777	9026.9793	1.97815	9042.8213	1.97853	9058.6772
3/16	1.97780	9027.9690	1.97818	9043.8119	1.97856	9059.6686
1/4	1.97782	9028.9588	1.97820	9044.8025	1.97858	9060.6602
5/16	1.97784	9029.9486	1.97822	9045.7932	1.97860	9061.6517
3/8	1.97787	9030.9385	1.97825	9046.7840	1.97863	9062.6433
7/16	1.97789	9031.9384	1.97827	9047.7748	1.97865	9063.6350
1/2	1.97791	9032.9184	1.97829	9048.7656	1.97867	9064.6267
9/16	1.97794	9033.9084	1.97832	9049.7565	1.97870	9065.6185
5/8	1.97796	9034.8985	1.97834	9050.7475	1.97872	9066.6104
11/16	1.97799	9035.8887	1.97837	9051.7385	1.97875	9067.6022
3/4	1.97801	9036.8789	1.97839	9052.7296	1.97877	9068.5942
13/16	1.97803	9037.8692	1.97841	9053.7207	1.97879	9069.5862
7/8	1.97806	9038.8595	1.97844	9054.7119	1.97882	9070.5782
15/16	1.97808	9039.8499	1.97846	9055.7032	1.97884	9071.5703

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.97886	9072.5625	1.97924	9088.4444	1.97962	9104.3403
1/16	1.97889	9073.5547	1.97927	9089.4375	1.97965	9105.3342
1/8	1.97891	9074.5470	1.97929	9090.4307	1.97967	9106.3282
3/16	1.97894	9075.5393	1.97932	9091.4239	1.97970	9107.3223
1/4	1.97896	9076.5317	1.97934	9092.4171	1.97972	9108.3164
5/16	1.97898	9077.5241	1.97936	9093.4104	1.97974	9109.3106
3/8	1.97901	9078.5166	1.97939	9094.4038	1.97977	9110.3048
7/16	1.97903	9079.5091	1.97941	9095.3972	1.97979	9111.2991
1/2	1.97905	9080.5017	1.97943	9096.3906	1.97981	9112.2934
9/16	1.97908	9081.4944	1.97946	9097.3841	1.97984	9113.2878
5/8	1.97910	9082.4871	1.97948	9098.3777	1.97986	9114.2822
11/16	1.97913	9083.4798	1.97951	9099.3713	1.97988	9115.2767
3/4	1.97915	9084.4727	1.97953	9100.3650	1.97991	9116.2713
13/16	1.97917	9085.4655	1.97955	9101.3588	1.97993	9117.2659
7/8	1.97920	9086.4584	1.97958	9102.3525	1.97996	9118.2605
15/16	1.97922	9087.4514	1.97960	9103.3464	1.97998	9119.2552

# 95'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98000	9120.2500	1.98038	9136.1736	1.98076	9152.1111
$\frac{1}{16}$	1.98003	9121.2448	1.98041	9137.1693	1.98078	9153.1077
$\frac{1}{8}$	1.98005	9122.2397	1.98043	9138.1650	1.98081	9154.1043
$\frac{3}{16}$	1.98007	9123.2346	1.98045	9139.1608	1.98083	9155.1009
$\frac{1}{4}$	1.98010	9124.2296	1.98048	9140.1567	1.98086	9156.0977
$\frac{5}{16}$	1.98012	9125.2246	1.98050	9141.1526	1.98088	9157.0944
$\frac{3}{8}$	1.98015	9126.2197	1.98052	9142.1485	1.98090	9158.0913
$\frac{7}{16}$	1.98017	9127.2149	1.98055	9143.1446	1.98093	9159.0881
$\frac{1}{2}$	1.98019	9128.2101	1.98057	9144.1406	1.98095	9160.0851
$\frac{9}{16}$	1.98022	9129.2053	1.98060	9145.1367	1.98097	9161.0821
$\frac{5}{8}$	1.98024	9130.2006	1.98062	9146.1329	1.98100	9162.0791
$\frac{11}{16}$	1.98026	9131.1960	1.98064	9147.1292	1.98102	9163.0762
$\frac{3}{4}$	1.98029	9132.1914	1.98067	9148.1254	1.98104	9164.0734
$\frac{13}{16}$	1.98031	9133.1869	1.98069	9149.1218	1.98107	9165.0706
$\frac{7}{8}$	1.98033	9134.1824	1.98071	9150.1182	1.98109	9166.0678
$\frac{15}{16}$	1.98036	9135.1780	1.98074	9151.1146	1.98112	9167.0651

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98114	9168.0625	1.98152	9184.0278	1.98189	9200.0069
$\frac{1}{16}$	1.98116	9169.0599	1.98154	9185.0261	1.98192	9201.0061
$\frac{1}{8}$	1.98119	9170.0574	1.98156	9186.0244	1.98194	9202.0053
$\frac{3}{16}$	1.98121	9171.0549	1.98159	9187.0228	1.98196	9203.0046
$\frac{1}{4}$	1.98123	9172.0525	1.98161	9188.0213	1.98199	9204.0039
$\frac{5}{16}$	1.98126	9173.0502	1.98163	9189.0198	1.98201	9205.0033
$\frac{3}{8}$	1.98128	9174.0479	1.98166	9190.0183	1.98204	9206.0027
$\frac{7}{16}$	1.98130	9175.0456	1.98168	9191.0170	1.98206	9207.0022
$\frac{1}{2}$	1.98133	9176.0434	1.98171	9192.0156	1.98208	9208.0017
$\frac{9}{16}$	1.98135	9177.0413	1.98173	9193.0144	1.98211	9209.0013
$\frac{5}{8}$	1.98137	9178.0392	1.98175	9194.0131	1.98213	9210.0010
$\frac{11}{16}$	1.98140	9179.0371	1.98178	9195.0120	1.98215	9211.0007
$\frac{3}{4}$	1.98142	9180.0352	1.98180	9196.0109	1.98218	9212.0004
$\frac{13}{16}$	1.98145	9181.0332	1.98182	9197.0098	1.98220	9213.0002
$\frac{7}{8}$	1.98147	9182.0314	1.98185	9198.0088	1.98222	9214.0001
$\frac{15}{16}$	1.98149	9183.0295	1.98187	9199.0078	1.98225	9215.0000

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98227	9216.0000	1.98265	9232.0069	1.98302	9248.0278
$\frac{1}{16}$	1.98229	9217.0000	1.98267	9233.0078	1.98305	9249.0295
$\frac{1}{8}$	1.98232	9218.0001	1.98270	9234.0088	1.98307	9250.0314
$\frac{3}{16}$	1.98234	9219.0002	1.98272	9235.0098	1.98310	9251.0332
$\frac{1}{4}$	1.98237	9220.0004	1.98274	9236.0109	1.98312	9252.0352
$\frac{5}{16}$	1.98239	9221.0007	1.98277	9237.0120	1.98314	9253.0371
$\frac{3}{8}$	1.98241	9222.0010	1.98279	9238.0131	1.98317	9254.0392
$\frac{7}{16}$	1.98244	9223.0013	1.98281	9239.0144	1.98319	9255.0413
$\frac{1}{2}$	1.98246	9224.0017	1.98284	9240.0156	1.98321	9256.0434
$\frac{9}{16}$	1.98248	9225.0022	1.98286	9241.0170	1.98324	9257.0456
$\frac{5}{8}$	1.98251	9226.0027	1.98288	9242.0183	1.98326	9258.0479
$1\frac{1}{16}$	1.98253	9227.0033	1.98291	9243.0198	1.98328	9259.0502
$\frac{3}{4}$	1.98255	9228.0039	1.98293	9244.0213	1.98331	9260.0525
$1\frac{3}{16}$	1.98258	9229.0046	1.98295	9245.0228	1.98333	9261.0549
$\frac{7}{8}$	1.98260	9230.0053	1.98298	9246.0244	1.98335	9262.0574
$1\frac{1}{2}$	1.98262	9231.0061	1.98300	9247.0261	1.98338	9263.0599
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98340	9264.0625	1.98378	9280.1111	1.98415	9296.1736
$\frac{1}{16}$	1.98342	9265.0651	1.98380	9281.1146	1.98418	9297.1780
$\frac{1}{8}$	1.98345	9266.0678	1.98382	9282.1182	1.98420	9298.1824
$\frac{3}{16}$	1.98347	9267.0706	1.98385	9283.1218	1.98422	9299.1869
$\frac{1}{4}$	1.98349	9268.0734	1.98387	9284.1254	1.98425	9300.1914
$\frac{5}{16}$	1.98352	9269.0762	1.98389	9285.1292	1.98427	9301.1960
$\frac{3}{8}$	1.98354	9270.0791	1.98392	9286.1329	1.98429	9302.2006
$\frac{7}{16}$	1.98357	9271.0821	1.98394	9287.1367	1.98432	9303.2053
$\frac{1}{2}$	1.98359	9272.0851	1.98396	9288.1406	1.98434	9304.2101
$\frac{9}{16}$	1.98361	9273.0881	1.98399	9289.1446	1.98436	9305.2149
$\frac{5}{8}$	1.98364	9274.0913	1.98401	9290.1485	1.98439	9306.2197
$1\frac{1}{16}$	1.98366	9275.0944	1.98403	9291.1526	1.98441	9307.2246
$\frac{3}{4}$	1.98368	9276.0977	1.98406	9292.1567	1.98443	9308.2296
$1\frac{3}{16}$	1.98371	9277.1009	1.98408	9293.1608	1.98446	9309.2346
$\frac{7}{8}$	1.98373	9278.1043	1.98411	9294.1650	1.98448	9310.2397
$1\frac{1}{2}$	1.98375	9279.1077	1.98413	9295.1693	1.98450	9311.2448

# 96'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98453	9312.2500	1.98490	9328.3403	1.98528	9344.4444
1/16	1.98455	9313.2552	1.98493	9329.3464	1.98530	9345.4514
1/8	1.98457	9314.2605	1.98495	9330.3525	1.98532	9346.4584
3/16	1.98460	9315.2659	1.98497	9331.3588	1.98535	9347.4655
1/4	1.98462	9316.2713	1.98500	9332.3650	1.98537	9348.4727
5/16	1.98464	9317.2767	1.98502	9333.3713	1.98539	9349.4798
3/8	1.98467	9318.2822	1.98504	9334.3777	1.98542	9350.4871
7/16	1.98469	9319.2878	1.98507	9335.3841	1.98544	9351.4944
1/2	1.98471	9320.2934	1.98509	9336.3906	1.98546	9352.5017
9/16	1.98474	9321.2991	1.98511	9337.3972	1.98549	9353.5091
5/8	1.98476	9322.3048	1.98514	9338.4038	1.98551	9354.5166
11/16	1.98479	9323.3106	1.98516	9339.4104	1.98553	9355.5241
3/4	1.98481	9324.3164	1.98518	9340.4171	1.98556	9356.5317
13/16	1.98483	9325.3223	1.98521	9341.4239	1.98558	9357.5393
7/8	1.98486	9326.3282	1.98523	9342.4307	1.98560	9358.5470
15/16	1.98488	9327.3342	1.98525	9343.4375	1.98563	9359.5547

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98565	9360.5625	1.98602	9376.6944	1.98640	9392.8403
1/16	1.98567	9361.5703	1.98605	9377.7032	1.98642	9393.8499
1/8	1.98570	9362.5782	1.98607	9378.7119	1.98645	9394.8595
3/16	1.98572	9363.5862	1.98609	9379.7207	1.98647	9395.8692
1/4	1.98574	9364.5942	1.98612	9380.7296	1.98649	9396.8789
5/16	1.98577	9365.6022	1.98614	9381.7385	1.98652	9397.8887
3/8	1.98579	9366.6104	1.98617	9382.7475	1.98654	9398.8985
7/16	1.98581	9367.6185	1.98619	9383.7565	1.98656	9399.9084
1/2	1.98584	9368.6267	1.98621	9384.7656	1.98659	9400.9184
9/16	1.98586	9369.6350	1.98624	9385.7748	1.98661	9401.9284
5/8	1.98588	9370.6433	1.98626	9386.7840	1.98663	9402.9385
11/16	1.98591	9371.6517	1.98628	9387.7932	1.98666	9403.9486
3/4	1.98593	9372.6602	1.98631	9388.8025	1.98668	9404.9588
13/16	1.98595	9373.6686	1.98633	9389.8119	1.98670	9405.9690
7/8	1.98598	9374.6772	1.98635	9390.8213	1.98673	9406.9793
15/16	1.98600	9375.6858	1.98638	9391.8308	1.98675	9407.9896



Fractions of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98677	9409.0000	1.98714	9425.1736	1.98752	9441.3611
$\frac{1}{16}$	1.98680	9410.0104	1.98717	9426.1849	1.98754	9442.3733
$\frac{1}{8}$	1.98682	9411.0209	1.98719	9427.1963	1.98756	9443.3855
$\frac{3}{16}$	1.98684	9412.0315	1.98721	9428.2077	1.98759	9444.3978
$\frac{1}{4}$	1.98687	9413.0421	1.98724	9429.2192	1.98761	9445.4102
$\frac{5}{16}$	1.98689	9414.0528	1.98726	9430.2307	1.98763	9446.4226
$\frac{3}{8}$	1.98691	9415.0635	1.98728	9431.2423	1.98766	9447.4350
$\frac{7}{16}$	1.98693	9416.0742	1.98731	9432.2539	1.98768	9448.4475
$\frac{1}{2}$	1.98696	9417.0851	1.98733	9433.2656	1.98770	9449.4601
$\frac{9}{16}$	1.98698	9418.0959	1.98735	9434.2774	1.98773	9450.4727
$\frac{5}{8}$	1.98700	9419.1069	1.98738	9435.2892	1.98775	9451.4854
$\frac{11}{16}$	1.98703	9420.1179	1.98740	9436.3010	1.98777	9452.4981
$\frac{3}{4}$	1.98705	9421.1289	1.98742	9437.3129	1.98780	9453.5109
$\frac{13}{16}$	1.98707	9422.1400	1.98745	9438.3249	1.98782	9454.5237
$\frac{7}{8}$	1.98710	9423.1512	1.98747	9439.3369	1.98784	9455.5366
$\frac{15}{16}$	1.98712	9424.1624	1.98749	9440.3490	1.98787	9456.5495

Fractions of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98789	9457.5625	1.98828	9473.7778	1.98863	9490.0069
$\frac{1}{16}$	1.98791	9458.5755	1.98828	9474.7917	1.98866	9491.0217
$\frac{1}{8}$	1.98794	9459.5887	1.98831	9475.8057	1.98868	9492.0366
$\frac{3}{16}$	1.98796	9460.6018	1.98833	9476.8197	1.98870	9493.0515
$\frac{1}{4}$	1.98798	9461.6150	1.98835	9477.8338	1.98873	9494.0664
$\frac{5}{16}$	1.98801	9462.6283	1.98838	9478.8479	1.98875	9495.0814
$\frac{3}{8}$	1.98803	9463.6416	1.98840	9479.8621	1.98877	9496.0965
$\frac{7}{16}$	1.98805	9464.6550	1.98842	9480.8763	1.98880	9497.1116
$\frac{1}{2}$	1.98808	9465.6684	1.98845	9481.8906	1.98882	9498.1267
$\frac{9}{16}$	1.98810	9466.6819	1.98847	9482.9050	1.98884	9499.1420
$\frac{5}{8}$	1.98812	9467.6954	1.98849	9483.9194	1.98887	9500.1572
$\frac{11}{16}$	1.98815	9468.7090	1.98852	9484.9338	1.98889	9501.1726
$\frac{3}{4}$	1.98817	9469.7227	1.98854	9485.9484	1.98891	9502.1879
$\frac{13}{16}$	1.98819	9470.7364	1.98856	9486.9629	1.98894	9503.2034
$\frac{7}{8}$	1.98822	9471.7501	1.98859	9487.9775	1.98896	9504.2189
$\frac{15}{16}$	1.98824	9472.7639	1.98861	9488.9922	1.98898	9505.2344

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.98900	9506.2500	1.98938	9522.5069	1.98975	9538.7778
$\frac{1}{16}$	1.98908	9507.2657	1.98940	9523.5235	1.98977	9539.7952
$\frac{1}{8}$	1.98905	9508.2814	1.98942	9524.5406	1.98979	9540.8126
$\frac{3}{16}$	1.98907	9509.2971	1.98945	9525.5567	1.98982	9541.8301
$\frac{1}{4}$	1.98910	9510.3129	1.98947	9526.5734	1.98984	9542.8477
$\frac{5}{16}$	1.98912	9511.3288	1.98949	9527.5901	1.98986	9543.8653
$\frac{3}{8}$	1.98914	9512.3447	1.98951	9528.6069	1.98989	9544.8829
$\frac{7}{16}$	1.98917	9513.3607	1.98954	9529.6237	1.98991	9545.9006
$\frac{1}{2}$	1.98919	9514.3767	1.98956	9530.6406	1.98993	9546.9184
$\frac{9}{16}$	1.98921	9515.3928	1.98958	9531.6576	1.98995	9547.9362
$\frac{5}{8}$	1.98924	9516.4090	1.98961	9532.6746	1.98998	9548.9541
$\frac{11}{16}$	1.98926	9517.4252	1.98963	9533.6917	1.99000	9549.9720
$\frac{3}{4}$	1.98928	9518.4414	1.98965	9534.7088	1.99002	9550.9900
$\frac{13}{16}$	1.98931	9519.4577	1.98968	9535.7259	1.99005	9552.0081
$\frac{7}{8}$	1.98933	9520.4741	1.98970	9536.7432	1.99007	9553.0262
$\frac{15}{16}$	1.98935	9521.4905	1.98972	9537.7604	1.99009	9554.0443

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99012	9555.0625	1.99049	9571.3611	1.99086	9587.6736
$\frac{1}{16}$	1.99014	9556.0808	1.99051	9572.3802	1.99088	9588.6936
$\frac{1}{8}$	1.99016	9557.0991	1.99053	9573.3994	1.99090	9589.7137
$\frac{3}{16}$	1.99019	9558.1174	1.99056	9574.4186	1.99093	9590.7338
$\frac{1}{4}$	1.99021	9559.1359	1.99058	9575.4379	1.99095	9591.7539
$\frac{5}{16}$	1.99023	9560.1543	1.99060	9576.4573	1.99097	9592.7741
$\frac{3}{8}$	1.99026	9561.1729	1.99063	9577.4767	1.99100	9593.7944
$\frac{7}{16}$	1.99028	9562.1914	1.99065	9578.4961	1.99102	9594.8147
$\frac{1}{2}$	1.99030	9563.2101	1.99067	9579.5156	1.99104	9595.8351
$\frac{9}{16}$	1.99032	9564.2288	1.99069	9580.5352	1.99106	9596.8555
$\frac{5}{8}$	1.99035	9565.2475	1.99072	9581.5548	1.99109	9597.8760
$\frac{11}{16}$	1.99037	9566.2663	1.99074	9582.5745	1.99111	9598.8965
$\frac{3}{4}$	1.99039	9567.2852	1.99076	9583.5942	1.99113	9599.9171
$\frac{13}{16}$	1.99042	9568.3041	1.99079	9584.6140	1.99116	9600.9377
$\frac{7}{8}$	1.99044	9569.3230	1.99081	9585.6338	1.99118	9601.9584
$\frac{15}{16}$	1.99046	9570.3420	1.99083	9586.6537	1.99120	9602.9792

Fraction of an inch	0"		1"		2"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99123	9604.0000	1.99160	9620.3403	1.99196	9636.6944
1/16	1.99125	9605.0209	1.99162	9621.3620	1.99199	9637.7170
1/8	1.99127	9606.0418	1.99164	9622.3838	1.99201	9638.7397
3/16	1.99130	9607.0627	1.99166	9623.4056	1.99203	9639.7624
1/4	1.99132	9608.0838	1.99169	9624.4275	1.99206	9640.7852
5/16	1.99134	9609.1048	1.99171	9625.4495	1.99208	9641.8080
3/8	1.99136	9610.1260	1.99173	9626.4715	1.99210	9642.8308
7/16	1.99139	9611.1472	1.99176	9627.4935	1.99213	9643.8538
1/2	1.99141	9612.1684	1.99178	9628.5156	1.99215	9644.8767
9/16	1.99143	9613.1897	1.99180	9629.5378	1.99217	9645.8998
5/8	1.99146	9614.2110	1.99183	9630.5600	1.99219	9646.9229
11/16	1.99148	9615.2324	1.99185	9631.5823	1.99222	9647.9460
3/4	1.99150	9616.2539	1.99187	9632.6046	1.99224	9648.9692
13/16	1.99153	9617.2754	1.99189	9633.6270	1.99226	9649.9924
7/8	1.99155	9618.2970	1.99192	9634.6494	1.99229	9651.0157
15/16	1.99157	9619.3186	1.99194	9635.6719	1.99231	9652.0391
Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99233	9653.0625	1.99270	9669.4444	1.99307	9685.8403
1/16	1.99236	9654.0860	1.99272	9670.4688	1.99309	9686.8655
1/8	1.99238	9655.1095	1.99275	9671.4932	1.99311	9687.8907
3/16	1.99240	9656.1331	1.99277	9672.5176	1.99314	9688.9160
1/4	1.99242	9657.1567	1.99279	9673.5421	1.99316	9689.9414
5/16	1.99245	9658.1804	1.99282	9674.5667	1.99318	9690.9668
3/8	1.99247	9659.2041	1.99284	9675.5913	1.99321	9691.9923
7/16	1.99249	9660.2279	1.99286	9676.6159	1.99323	9693.0178
1/2	1.99252	9661.2517	1.99288	9677.6406	1.99325	9694.0434
9/16	1.99254	9662.2756	1.99291	9678.6654	1.99328	9695.0690
5/8	1.99256	9663.2996	1.99293	9679.6902	1.99330	9696.0947
11/16	1.99259	9664.3236	1.99295	9680.7151	1.99332	9697.1205
3/4	1.99261	9665.3477	1.99298	9681.7400	1.99334	9698.1463
13/16	1.99263	9666.3718	1.99300	9682.7650	1.99337	9699.1721
7/8	1.99265	9667.3959	1.99302	9683.7900	1.99339	9700.1980
15/16	1.99268	9668.4202	1.99305	9684.8151	1.99341	9701.2240

# 98'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99344	9702.2500	1.99380	9718.6736	1.99417	9735.1111
1/16	1.99346	9703.2761	1.99383	9719.7005	1.99419	9736.1389
1/8	1.99348	9704.3022	1.99385	9720.7275	1.99422	9737.1668
3/16	1.99351	9705.3284	1.99387	9721.7546	1.99424	9738.1947
1/4	1.99353	9706.3546	1.99390	9722.7817	1.99426	9739.2227
5/16	1.99355	9707.3809	1.99392	9723.8088	1.99429	9740.2507
3/8	1.99357	9708.4072	1.99394	9724.8360	1.99431	9741.2788
7/16	1.99360	9709.4336	1.99396	9725.8633	1.99433	9742.3069
1/2	1.99362	9710.4601	1.99399	9726.8906	1.99435	9743.3351
9/16	1.99364	9711.4866	1.99401	9727.9180	1.99438	9744.3633
5/8	1.99367	9712.5131	1.99403	9728.9454	1.99440	9745.3916
11/16	1.99369	9713.5397	1.99406	9729.9729	1.99442	9746.4199
3/4	1.99371	9714.5664	1.99408	9731.0004	1.99445	9747.4484
13/16	1.99373	9715.5931	1.99410	9732.0280	1.99447	9748.4768
7/8	1.99376	9716.6199	1.99412	9733.0557	1.99449	9749.5053
15/16	1.99378	9717.6467	1.99415	9734.0834	1.99451	9750.5339

Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99454	9751.5625	1.99490	9768.0278	1.99527	9784.5069
1/16	1.99456	9752.5912	1.99493	9769.0573	1.99529	9785.5374
1/8	1.99458	9753.6199	1.99495	9770.0869	1.99532	9786.5678
3/16	1.99461	9754.6487	1.99497	9771.1166	1.99534	9787.5983
1/4	1.99463	9755.6775	1.99499	9772.1463	1.99536	9788.6289
5/16	1.99465	9756.7064	1.99502	9773.1760	1.99538	9789.6595
3/8	1.99467	9757.7354	1.99504	9774.2058	1.99541	9790.6902
7/16	1.99470	9758.7644	1.99506	9775.2357	1.99543	9791.7209
1/2	1.99472	9759.7934	1.99509	9776.2656	1.99545	9792.7517
9/16	1.99474	9760.8225	1.99511	9777.2956	1.99548	9793.7826
5/8	1.99477	9761.8517	1.99513	9778.3256	1.99550	9794.8135
11/16	1.99479	9762.8809	1.99516	9779.3557	1.99552	9795.8444
3/4	1.99481	9763.9102	1.99518	9780.3859	1.99554	9796.8754
13/16	1.99483	9764.9395	1.99520	9781.4160	1.99557	9797.9065
7/8	1.99486	9765.9689	1.99522	9782.4463	1.99559	9798.9376
15/16	1.99488	9766.9983	1.99525	9783.4766	1.99561	9799.9688

Fraction of an inch	0'		1'		2'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99564	9801.0000	1.99600	9817.5069	1.99637	9834.0278
$\frac{1}{16}$	1.99566	9802.0313	1.99602	9818.5391	1.99639	9835.0608
$\frac{1}{8}$	1.99568	9803.0626	1.99605	9819.5713	1.99641	9836.0939
$\frac{3}{16}$	1.99570	9804.0940	1.99607	9820.6035	1.99643	9837.1270
$\frac{1}{4}$	1.99573	9805.1254	1.99609	9821.6359	1.99646	9838.1602
$\frac{5}{16}$	1.99575	9806.1569	1.99611	9822.6682	1.99648	9839.1934
$\frac{3}{8}$	1.99577	9807.1885	1.99614	9823.7006	1.99650	9840.2267
$\frac{7}{16}$	1.99580	9808.2201	1.99616	9824.7331	1.99653	9841.2600
$\frac{1}{2}$	1.99582	9809.2517	1.99618	9825.7656	1.99655	9842.2934
$\frac{9}{16}$	1.99584	9810.2834	1.99621	9826.7982	1.99657	9843.3269
$\frac{5}{8}$	1.99586	9811.3152	1.99623	9827.8308	1.99659	9844.3604
$\frac{11}{16}$	1.99589	9812.3470	1.99625	9828.8635	1.99662	9845.3939
$\frac{3}{4}$	1.99591	9813.3789	1.99627	9829.8963	1.99664	9846.4275
$\frac{13}{16}$	1.99593	9814.4108	1.99630	9830.9291	1.99666	9847.4612
$\frac{7}{8}$	1.99595	9815.4428	1.99632	9831.9619	1.99668	9848.4949
$\frac{15}{16}$	1.99598	9816.4749	1.99634	9832.9948	1.99671	9849.5287

Fraction of an inch	3'		4'		5'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99673	9850.5625	1.99710	9867.1111	1.99746	9883.6736
$\frac{1}{16}$	1.99675	9851.5964	1.99712	9868.1459	1.99748	9884.7092
$\frac{1}{8}$	1.99678	9852.6303	1.99714	9869.1807	1.99750	9885.7449
$\frac{3}{16}$	1.99680	9853.6643	1.99716	9870.2155	1.99753	9886.7806
$\frac{1}{4}$	1.99682	9854.6984	1.99719	9871.2504	1.99755	9887.8164
$\frac{5}{16}$	1.99684	9855.7324	1.99721	9872.2854	1.99757	9888.8522
$\frac{3}{8}$	1.99687	9856.7666	1.99723	9873.3204	1.99760	9889.8881
$\frac{7}{16}$	1.99689	9857.8008	1.99725	9874.3555	1.99762	9890.9241
$\frac{1}{2}$	1.99691	9858.8351	1.99728	9875.3906	1.99764	9891.9601
$\frac{9}{16}$	1.99694	9859.8694	1.99730	9876.4258	1.99766	9892.9961
$\frac{5}{8}$	1.99696	9860.9038	1.99732	9877.4610	1.99769	9894.0322
$\frac{11}{16}$	1.99698	9861.9382	1.99735	9878.4963	1.99771	9895.0684
$\frac{3}{4}$	1.99700	9862.9727	1.99737	9879.5317	1.99773	9896.1046
$\frac{13}{16}$	1.99703	9864.0072	1.99739	9880.5671	1.99775	9897.1409
$\frac{7}{8}$	1.99705	9865.0418	1.99741	9881.6025	1.99778	9898.1772
$\frac{15}{16}$	1.99707	9866.0764	1.99744	9882.6380	1.99780	9899.2136

# 99'

Fraction of an inch	6'		7'		8'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99782	9900.2500	1.99819	9916.8403	1.99855	9933.4444
1/16	1.99785	9901.2865	1.99821	9917.8776	1.99857	9934.4827
1/8	1.99787	9902.3230	1.99823	9918.9150	1.99860	9935.5209
3/16	1.99789	9903.3596	1.99825	9919.9525	1.99862	9936.5593
1/4	1.99791	9904.3963	1.99828	9920.9900	1.99864	9937.5977
5/16	1.99794	9905.4330	1.99830	9922.0276	1.99866	9938.6361
3/8	1.99796	9906.4697	1.99832	9923.0652	1.99869	9939.6746
7/16	1.99798	9907.5065	1.99835	9924.1029	1.99871	9940.7131
1/2	1.99800	9908.5434	1.99837	9925.1406	1.99873	9941.7517
9/16	1.99803	9909.5803	1.99839	9926.1784	1.99875	9942.7904
5/8	1.99805	9910.6173	1.99841	9927.2163	1.99878	9943.8291
11/16	1.99807	9911.6543	1.99844	9928.2542	1.99880	9944.8679
3/4	1.99810	9912.6914	1.99846	9929.2921	1.99882	9945.9067
13/16	1.99812	9913.7285	1.99848	9930.3301	1.99884	9946.9456
7/8	1.99814	9914.7657	1.99850	9931.3682	1.99887	9947.9845
15/16	1.99816	9915.8030	1.99853	9932.4063	1.99889	9949.0235
Fraction of an inch	9'		10'		11'	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99891	9950.0625	1.99928	9966.6944	1.99964	9983.3403
1/16	1.99894	9951.1016	1.99930	9967.7344	1.99966	9984.3811
1/8	1.99896	9952.1407	1.99932	9968.7744	1.99968	9985.4220
3/16	1.99898	9953.1799	1.99934	9969.8145	1.99971	9986.4629
1/4	1.99900	9954.2192	1.99937	9970.8546	1.99973	9987.5039
5/16	1.99903	9955.2585	1.99939	9971.8948	1.99975	9988.5449
3/8	1.99905	9956.2979	1.99941	9972.9350	1.99977	9989.5860
7/16	1.99907	9957.3373	1.99943	9973.9753	1.99980	9990.6272
1/2	1.99909	9958.3767	1.99946	9975.0156	1.99982	9991.6684
9/16	1.99912	9959.4163	1.99948	9976.0560	1.99984	9992.7097
5/8	1.99914	9960.4558	1.99950	9977.0965	1.99986	9993.7510
11/16	1.99916	9961.4955	1.99952	9978.1370	1.99989	9994.7923
3/4	1.99918	9962.5352	1.99955	9979.1775	1.99991	9995.8338
13/16	1.99921	9963.5749	1.99957	9980.2181	1.99993	9996.8752
7/8	1.99923	9964.6147	1.99959	9981.2588	1.99995	9997.9168
15/16	1.99925	9965.6545	1.99962	9982.2995	1.99998	9998.9584

the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million (1990–1999) (Office of National Statistics 2000).

There is a growing awareness of the need to address the health care needs of older people. The Department of Health (1999) has set out a strategy for the NHS to meet the needs of older people. This includes a commitment to improve the quality of care for older people, to ensure that older people are able to live independently for as long as possible, and to ensure that older people are able to access the services they need. The strategy also includes a commitment to improve the training and education of health care professionals to meet the needs of older people.

The purpose of this paper is to review the literature on the health care needs of older people, and to discuss the implications for the NHS. The paper is organized as follows. First, we discuss the demographic changes in the UK population, and the implications for the health care system. Second, we discuss the health care needs of older people, and the challenges facing the NHS in meeting these needs. Third, we discuss the implications for the NHS, and the need for a new approach to the care of older people.

**Demographic changes in the UK population** The UK population is ageing. The number of people aged 65 and over has increased from 4.5 million in 1990 to 5.5 million in 1999 (Office of National Statistics 2000). This represents an increase of 22% in the number of older people in the UK population. The increase in the number of older people is due to a combination of factors, including a decline in the birth rate, and an increase in life expectancy.

The increase in life expectancy is a result of a number of factors, including improvements in medical care, and a decline in the incidence of many of the major causes of death. The increase in life expectancy has led to a corresponding increase in the number of people aged 65 and over who are in good health, and who are able to live independently for a longer period of their lives.

However, the increase in life expectancy has also led to a corresponding increase in the number of people aged 65 and over who are in poor health, and who are unable to live independently for a longer period of their lives. This is due to a number of factors, including the increasing prevalence of chronic diseases, and the increasing incidence of falls and fractures in older people.

The increase in the number of older people in poor health has led to a corresponding increase in the demand for health care services. This is particularly true for the care of older people with chronic diseases, and for the care of older people who are unable to live independently for a longer period of their lives.

The increase in the demand for health care services has led to a corresponding increase in the costs of health care. This is particularly true for the care of older people with chronic diseases, and for the care of older people who are unable to live independently for a longer period of their lives. The increase in the costs of health care has led to a corresponding increase in the pressure on the NHS to reduce costs, and to improve the efficiency of its services.

The increase in the demand for health care services, and the corresponding increase in the costs of health care, have led to a corresponding increase in the pressure on the NHS to reform itself. This has led to a number of initiatives, including the introduction of the NHS Direct service, and the introduction of the NHS Choice and Control Fund.

The NHS Direct service is a 24-hour service that provides advice and information on a wide range of health problems. The NHS Choice and Control Fund is a fund that allows older people to choose the way they want to receive their health care, and to pay for it themselves. These initiatives are part of a wider effort to reform the NHS, and to ensure that it is able to meet the needs of older people in the future.

Fraction of an inch	6"		7"		8"	
	Log.	Square.	Log.	Square.	Log.	Square.
0	1.99782	9900.2500	1.99819	9916.8403	1.99855	9933.4444
$\frac{1}{16}$	1.99785	9901.2865	1.99821	9917.8776	1.99857	9934.4827
$\frac{1}{8}$	1.99787	9902.3230	1.99823	9918.9150	1.99860	9935.5209
$\frac{3}{16}$	1.99789	9903.3596	1.99825	9919.9525	1.99862	9936.5593
$\frac{1}{4}$	1.99791	9904.3963	1.99828	9920.9900	1.99864	9937.5977
$\frac{5}{16}$	1.99794	9905.4330	1.99830	9922.0276	1.99866	9938.6361
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$\frac{7}{16}$	1.99798	9907.5065	1.99835	9924.1029	1.99871	9940.7131
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$\frac{9}{16}$	1.99803	9909.5803	1.99839	9926.1784	1.99875	9942.7904
$\frac{5}{8}$	1.99805	9910.6173	1.99841	9927.2163	1.99878	9943.8291
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$\frac{3}{4}$	1.99810	9912.6914	1.99846	9929.2921	1.99882	9945.9067
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$\frac{7}{8}$	1.99814	9914.7657	1.99850	9931.3682	1.99887	9947.9845
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Fraction of an inch	9"		10"		11"	
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$\frac{1}{8}$	1.99896	9952.1407	1.99932	9968.7744	1.99968	9985.4220
$\frac{3}{16}$	1.99898	9953.1799	1.99934	9969.8145	1.99971	9986.4629
$\frac{1}{4}$	1.99900	9954.2192	1.99937	9970.8546	1.99973	9987.5039
$\frac{5}{16}$	1.99903	9955.2585	1.99939	9971.8948	1.99975	9988.5449
$\frac{3}{8}$	1.99905	9956.2979	1.99941	9972.9350	1.99977	9989.5860
$\frac{7}{16}$	1.99907	9957.3373	1.99943	9973.9753	1.99980	9990.6272
$\frac{1}{2}$	1.99909	9958.3767	1.99946	9975.0156	1.99982	9991.6684
$\frac{9}{16}$	1.99912	9959.4163	1.99948	9976.0560	1.99984	9992.7097
$\frac{5}{8}$	1.99914	9960.4558	1.99950	9977.0965	1.99986	9993.7510
$\frac{11}{16}$	1.99916	9961.4955	1.99952	9978.1370	1.99989	9994.7923
$\frac{3}{4}$	1.99918	9962.5352	1.99955	9979.1775	1.99991	9995.8338
$\frac{13}{16}$	1.99921	9963.5749	1.99957	9980.2181	1.99993	9996.8752
$\frac{7}{8}$	1.99923	9964.6147	1.99959	9981.2588	1.99995	9997.9168
$\frac{15}{16}$	1.99925	9965.6545	1.99962	9982.2995	1.99998	9998.9584



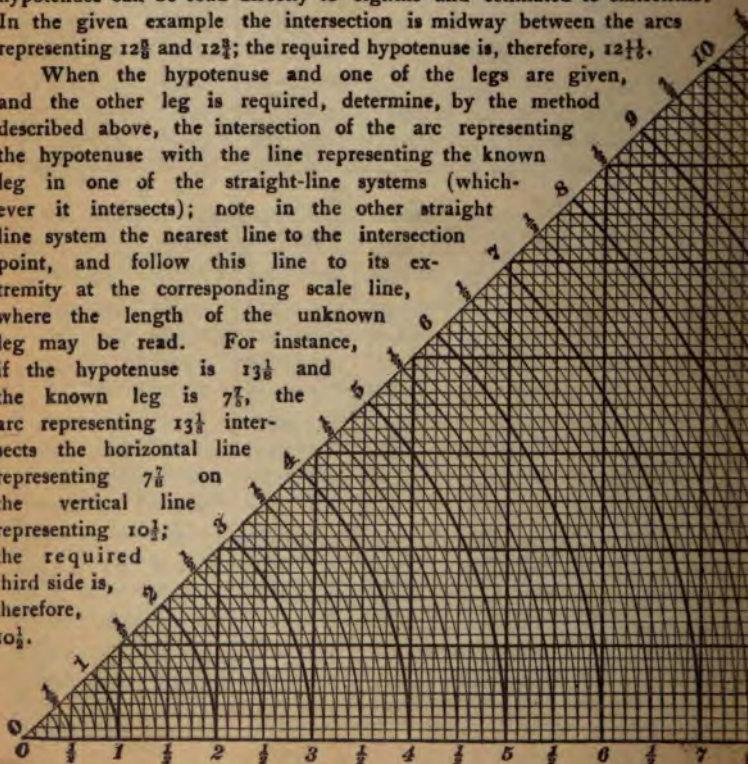
# GRAPHIC SOLUTION OF A RIGHT

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The accompanying diagram may be used as a means of solving a right triangle with three systems of lines, as shown. The circular arcs are drawn from the origin of the diagram as a center. Each of these three systems of lines represents a scale. The light lines represent eighths and quarters; the medium-heavy lines, units, as shown. The units and half units are numbered. The circular lines are given on the  $45^\circ$  line and continued along the top of the diagram.

To find the hypotenuse of a right triangle whose legs are known—is  $9\frac{3}{4}$  and the other  $8\frac{1}{2}$ —place a ruler or the straight edge of a sheet of paper alongside the vertical line representing the *larger* dimension, in this case  $9\frac{3}{4}$ . Then with a pencil point follow the horizontal line representing the *smaller* known dimension to its intersection with the first. Then follow the arc nearest the intersection to the upper boundary of the diagram, where the hypotenuse can be read directly to eighths and estimated to sixteenths. In the given example the intersection is midway between the arcs representing  $12\frac{5}{8}$  and  $12\frac{3}{4}$ ; the required hypotenuse is, therefore,  $12\frac{11}{16}$ .

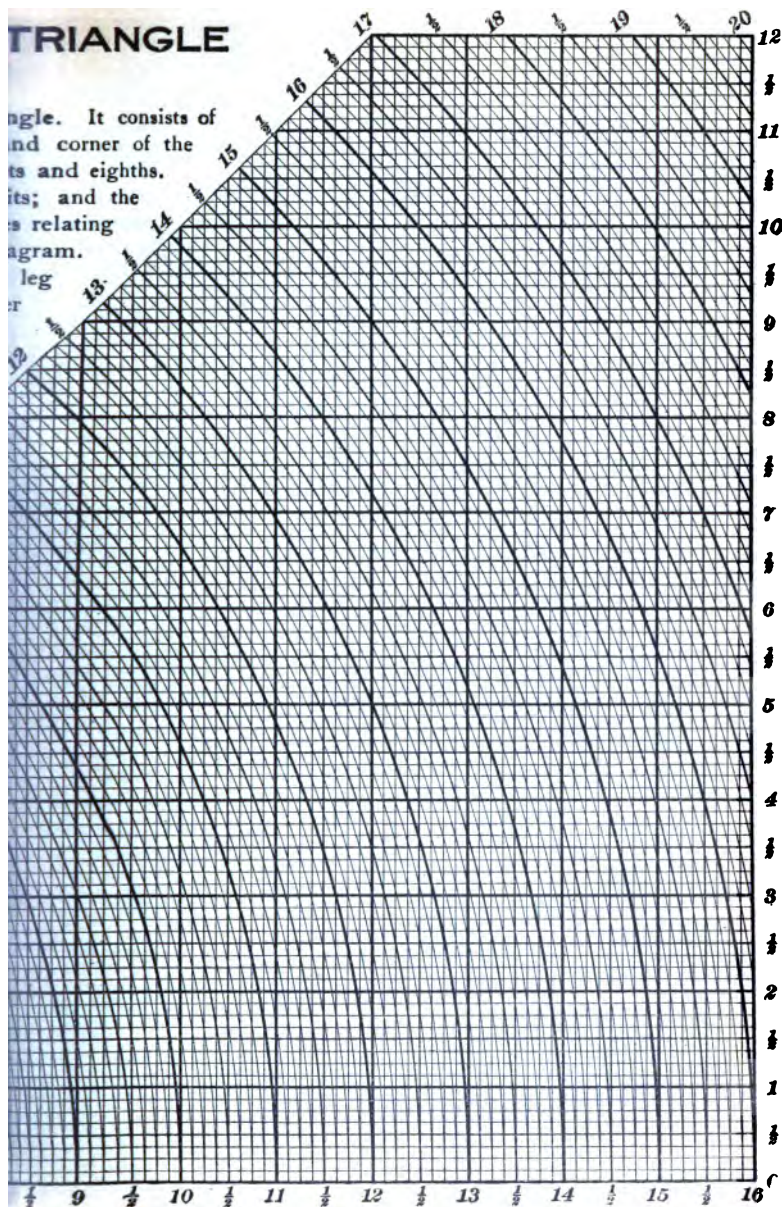
When the hypotenuse and one of the legs are given, and the other leg is required, determine, by the method described above, the intersection of the arc representing the hypotenuse with the line representing the known leg in one of the straight-line systems (which-ever it intersects); note in the other straight line system the nearest line to the intersection point, and follow this line to its extremity at the corresponding scale line, where the length of the unknown leg may be read. For instance, if the hypotenuse is  $13\frac{1}{8}$  and the known leg is  $7\frac{7}{8}$ , the arc representing  $13\frac{1}{8}$  intersects the horizontal line representing  $7\frac{7}{8}$  on the vertical line representing  $10\frac{1}{2}$ ; the required third side is, therefore,  $10\frac{1}{2}$ .



# TRIANGLE

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# GRAPHIC SOLUTION OF A RIGHT

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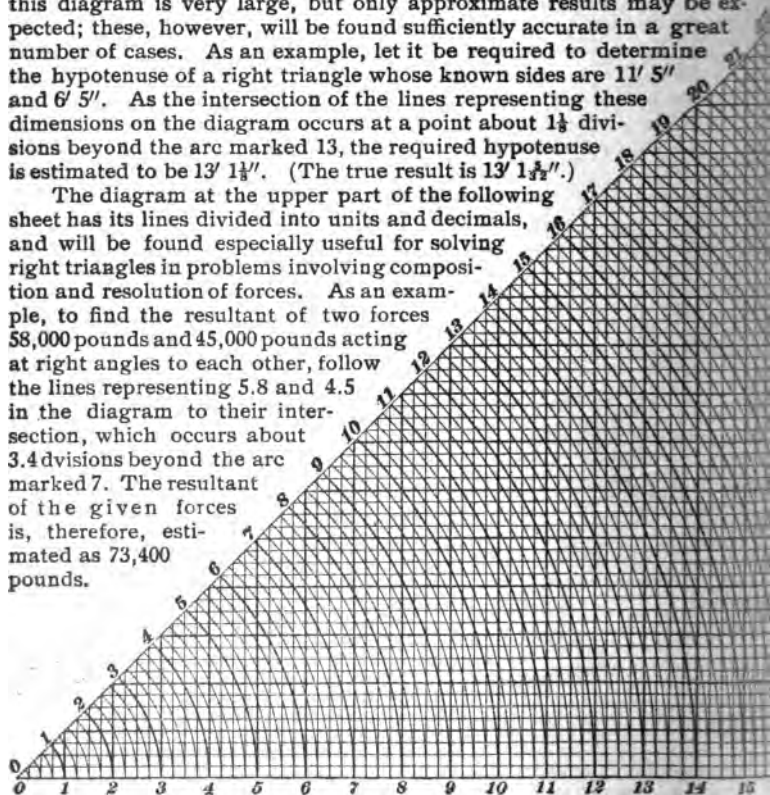
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The diagrams shown on this and the following sheets are based on the diagram on the preceding sheet, the difference being in the ground manner in which the lines are subdivided.

The diagram shown on this sheet has a scope twice as large as the preceding sheet, but its lines are divided into units and quarters, thus necessary to estimate eighths, as well as sixteenths. For example, to find, by the diagram, the hypotenuse of a right triangle whose legs are  $21\frac{1}{2}$  and the lines representing these dimensions to their intersection, which occurs at point  $2\frac{1}{2}$  divisions beyond the arc marked 27. The required hypotenuse is therefore, estimated to be  $27\frac{1}{2}$ .

On the following sheet, the diagram at the lower part has its lines divided into units and twelfths, representing feet and inches. The scope of this diagram is very large, but only approximate results may be expected; these, however, will be found sufficiently accurate in a great number of cases. As an example, let it be required to determine the hypotenuse of a right triangle whose known sides are  $11' 5''$  and  $6' 5''$ . As the intersection of the lines representing these dimensions on the diagram occurs at a point about  $1\frac{1}{2}$  divisions beyond the arc marked 13, the required hypotenuse is estimated to be  $13' 1\frac{1}{2}''$ . (The true result is  $13' 1\frac{1}{2}''$ .)

The diagram at the upper part of the following sheet has its lines divided into units and decimals, and will be found especially useful for solving right triangles in problems involving composition and resolution of forces. As an example, to find the resultant of two forces 58,000 pounds and 45,000 pounds acting at right angles to each other, follow the lines representing 5.8 and 4.5 in the diagram to their intersection, which occurs about 3.4 divisions beyond the arc marked 7. The resultant of the given forces is, therefore, estimated as 73,400 pounds.





# TRIANGLE

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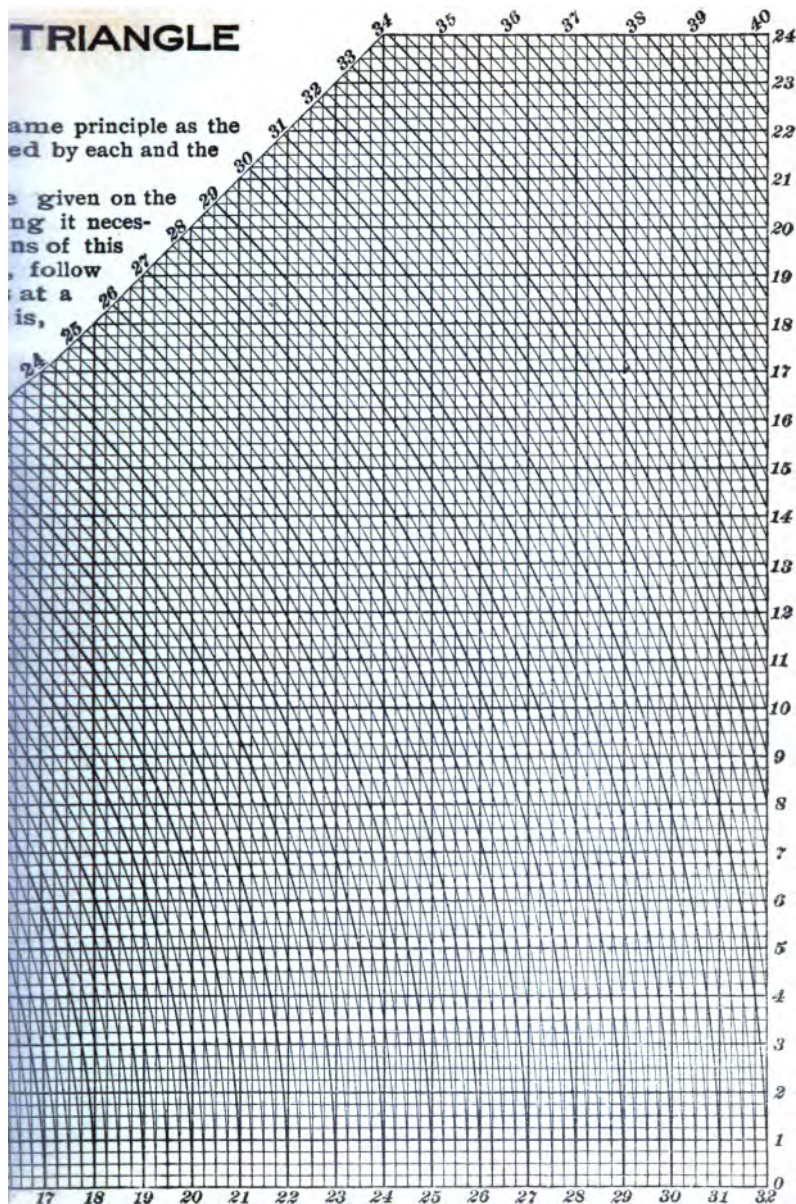
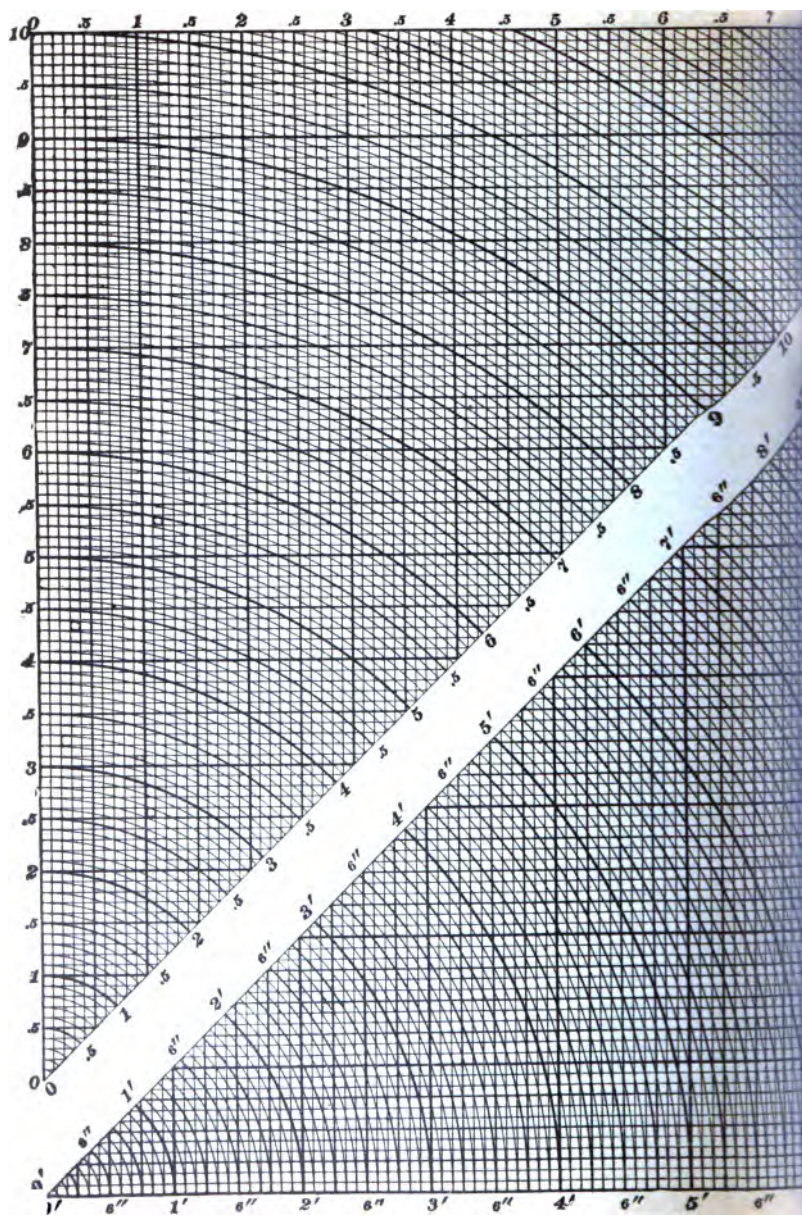


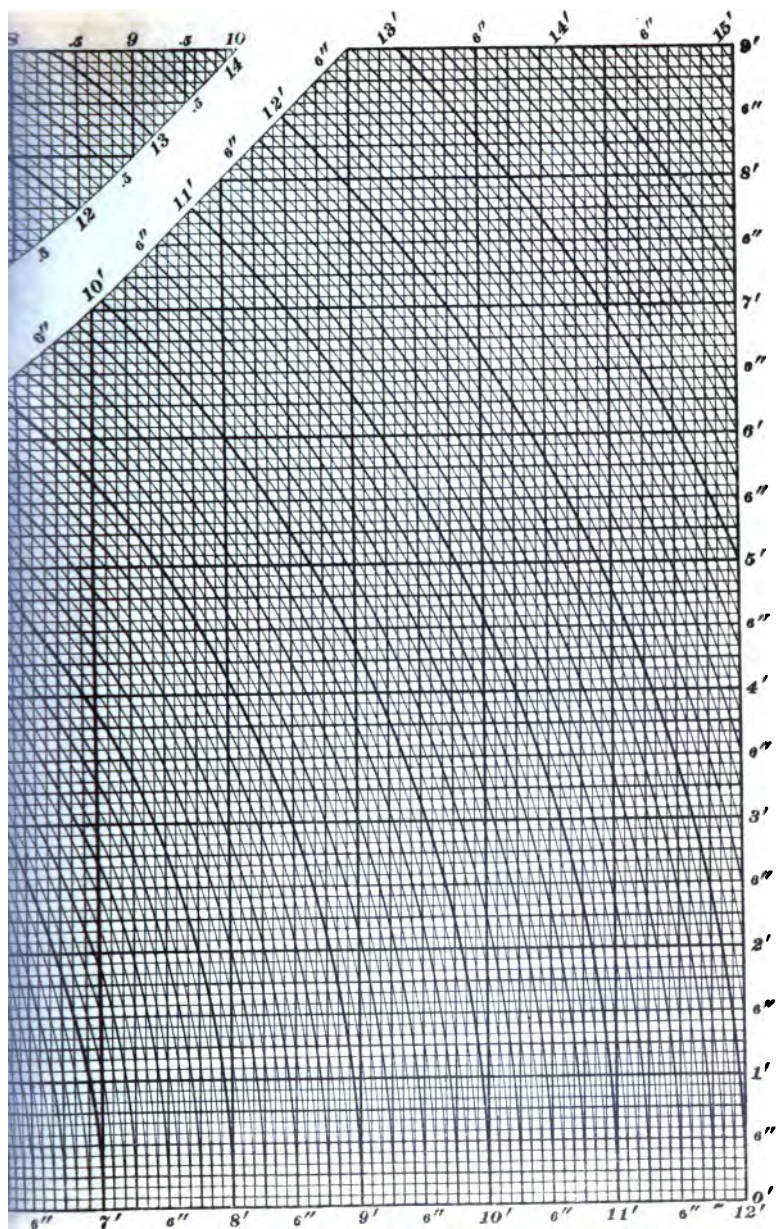


Table 1. Demographic characteristics of the study population		Table 2. Demographic characteristics of the study population	
Characteristic	Frequency (%)	Characteristic	Frequency (%)
Age (years)		Gender	
18-24	15 (10.0)	Male	10 (6.7)
25-34	25 (16.7)	Female	15 (10.0)
35-44	35 (23.3)		
45-54	45 (30.0)		
55-64	55 (36.7)		
65-74	65 (43.3)		
75-84	75 (50.0)		
85-94	85 (56.7)		
95-104	95 (63.3)		
105-114	105 (70.0)		
115-124	115 (76.7)		
125-134	125 (83.3)		
135-144	135 (90.0)		
145-154	145 (96.7)		
155-164	155 (103.3)		
165-174	165 (110.0)		
175-184	175 (116.7)		
185-194	185 (123.3)		
195-204	195 (130.0)		
205-214	205 (136.7)		
215-224	215 (143.3)		
225-234	225 (150.0)		
235-244	235 (156.7)		
245-254	245 (163.3)		
255-264	255 (170.0)		
265-274	265 (176.7)		
275-284	275 (183.3)		
285-294	285 (190.0)		
295-304	295 (196.7)		
305-314	305 (203.3)		
315-324	315 (210.0)		
325-334	325 (216.7)		
335-344	335 (223.3)		
345-354	345 (230.0)		
355-364	355 (236.7)		
365-374	365 (243.3)		
375-384	375 (250.0)		
385-394	385 (256.7)		
395-404	395 (263.3)		
405-414	405 (270.0)		
415-424	415 (276.7)		
425-434	425 (283.3)		
435-444	435 (290.0)		
445-454	445 (296.7)		
455-464	455 (303.3)		
465-474	465 (310.0)		
475-484	475 (316.7)		
485-494	485 (323.3)		
495-504	495 (330.0)		
505-514	505 (336.7)		
515-524	515 (343.3)		
525-534	525 (350.0)		
535-544	535 (356.7)		
545-554	545 (363.3)		
555-564	555 (370.0)		
565-574	565 (376.7)		
575-584	575 (383.3)		
585-594	585 (390.0)		
595-604	595 (396.7)		
605-614	605 (403.3)		
615-624	615 (410.0)		
625-634	625 (416.7)		
635-644	635 (423.3)		
645-654	645 (430.0)		
655-664	655 (436.7)		
665-674	665 (443.3)		
675-684	675 (450.0)		
685-694	685 (456.7)		
695-704	695 (463.3)		
705-714	705 (470.0)		
715-724	715 (476.7)		
725-734	725 (483.3)		
735-744	735 (490.0)		
745-754	745 (496.7)		
755-764	755 (503.3)		
765-774	765 (510.0)		
775-784	775 (516.7)		
785-794	785 (523.3)		
795-804	795 (530.0)		
805-814	805 (536.7)		
815-824	815 (543.3)		
825-834	825 (550.0)		
835-844	835 (556.7)		
845-854	845 (563.3)		
855-864	855 (570.0)		
865-874	865 (576.7)		
875-884	875 (583.3)		
885-894	885 (590.0)		
895-904	895 (596.7)		
905-914	905 (603.3)		
915-924	915 (610.0)		
925-934	925 (616.7)		
935-944	935 (623.3)		
945-954	945 (630.0)		
955-964	955 (636.7)		
965-974	965 (643.3)		
975-984	975 (650.0)		
985-994	985 (656.7)		
995-1004	995 (663.3)		
1005-1014	1005 (670.0)		
1015-1024	1015 (676.7)		
1025-1034	1025 (683.3)		
1035-1044	1035 (690.0)		
1045-1054	1045 (696.7)		
1055-1064	1055 (703.3)		
1065-1074	1065 (710.0)		
1075-1084	1075 (716.7)		
1085-1094	1085 (723.3)		
1095-1104	1095 (730.0)		
1105-1114	1105 (736.7)		
1115-1124	1115 (743.3)		
1125-1134	1125 (750.0)		
1135-1144	1135 (756.7)		
1145-1154	1145 (763.3)		
1155-1164	1155 (770.0)		
1165-1174	1165 (776.7)		
1175-1184	1175 (783.3)		
1185-1194	1185 (790.0)		
1195-1204	1195 (796.7)		
1205-1214	1205 (803.3)		
1215-1224	1215 (810.0)		
1225-1234	1225 (816.7)		
1235-1244	1235 (823.3)		
1245-1254	1245 (830.0)		
1255-1264	1255 (836.7)		
1265-1274	1265 (843.3)		
1275-1284	1275 (850.0)		
1285-1294	1285 (856.7)		
1295-1304	1295 (863.3)		
1305-1314	1305 (870.0)		
1315-1324	1315 (876.7)		
1325-1334	1325 (883.3)		
1335-1344	1335 (890.0)		
1345-1354	1345 (896.7)		
1355-1364	1355 (903.3)		
1365-1374	1365 (910.0)		
1375-1384	1375 (916.7)		
1385-1394	1385 (923.3)		
1395-1404	1395 (930.0)		
1405-1414	1405 (936.7)		
1415-1424	1415 (943.3)		
1425-1434	1425 (950.0)		
1435-1444	1435 (956.7)		
1445-1454	1445 (963.3)		
1455-1464	1455 (970.0)		
1465-1474	1465 (976.7)		
1475-1484	1475 (983.3)		
1485-1494	1485 (990.0)		
1495-1504	1495 (996.7)		
1505-1514	1505 (1003.3)		
1515-1524	1515 (1010.0)		
1525-1534	1525 (1016.7)		
1535-1544	1535 (1023.3)		
1545-1554	1545 (1030.0)		
1555-1564	1555 (1036.7)		
1565-1574	1565 (1043.3)		
1575-1584	1575 (1050.0)		
1585-1594	1585 (1056.7)		
1595-1604	1595 (1063.3)		
1605-1614	1605 (1070.0)		
1615-1624	1615 (1076.7)		
1625-1634	1625 (1083.3)		
1635-1644	1635 (1090.0)		
1645-1654	1645 (1096.7)		
1655-1664	1655 (1103.3)		
1665-1674	1665 (1110.0)		
1675-1684	1675 (1116.7)		
1685-1694	1685 (1123.3)		
1695-1704	1695 (1130.0)		
1705-1714	1705 (1136.7)		
1715-1724	1715 (1143.3)		
1725-1734	1725 (1150.0)		
1735-1744	1735 (1156.7)		
1745-1754	1745 (1163.3)		
1755-1764	1755 (1170.0)		
1765-1774	1765 (1176.7)		
1775-1784	1775 (1183.3)		
1785-1794	1785 (1190.0)		
1795-1804	1795 (1196.7)		
1805-1814	1805 (1203.3)		
1815-1824	1815 (1210.0)		
1825-1834	1825 (1216.7)		
1835-1844	1835 (1223.3)		
1845-1854	1845 (1230.0)		
1855-1864	1855 (1236.7)		
1865-1874	1865 (1243.3)		
1875-1884	1875 (1250.0)		
1885-1894	1885 (1256.7)		
1895-1904	1895 (1263.3)		
1905-1914	1905 (1270.0)		
1915-1924	1915 (1276.7)		
1925-1934	1925 (1283.3)		
1935-1944	1935 (1290.0)		
1945-1954	1945 (1296.7)		
1955-1964	1955 (1303.3)		
1965-1974	1965 (1310.0)		
1975-1984	1975 (1316.7)		
1985-1994	1985 (1323.3)		
1995-2004	1995 (1330.0)		
2005-2014	2005 (1336.7)		
2015-2024	2015 (1343.3)		
2025-2034	2025 (1350.0)		
2035-2044	2035 (1356.7)		
2045-2054	2045 (1363.3)		
2055-2064	2055 (1370.0)		
2065-2074	2065 (1376.7)		
2075-2084	2075 (1383.3)		
2085-2094	2085 (1390.0)		
2095-2104	2095 (1396.7)		
2105-2114	2105 (1403.3)		
2115-2124	2115 (1410.0)		
2125-2134	2125 (1416.7)		
2135-2144	2135 (1423.3)		
2145-2154	2145 (1430.0)		
2155-2164	2155 (1436.7)		
2165-2174	2165 (1443.3)		
2175-2184	2175 (1450.0)		
2185-2194	2185 (1456.7)		
2195-2204	2195 (1463.3)		
2205-2214	2205 (1470.0)		
2215-2224	2215 (1476.7)		
2225-2234	2225 (1483.3)		
2235-2244	2235 (1490.0)		
2245-2254	2245 (1496.7)		
2255-2264	2255 (1503.3)		
2265-2274	2265 (1510.0)		
2275-2284	2275 (1516.7)		
2285-2294	2285 (1523.3)		
2295-2304	2295 (1530.0)		
2305-2314	2305 (1536.7)		
2315-2324	2315 (1543.3)		
2325-2334	2325 (1550.0)		
2335-2344	2335 (1556.7)		
2345-2354	2345 (1563.3)		
2355-2364	2355 (1570.0)		
2365-2374	2365 (1576.7)		
2375-2384	2375 (1583.3)		
2385-2394	2385 (1590.0)		
2395-2404	2395 (1596.7)		
2405-2414	2405 (1603.3)		
2415-2424	2415 (1610.0)		
2425-2434	2425 (1616.7)		
2435-2444	2435 (1623.3)		
2445-2454	2445 (1630.0)		
2455-2464	2455 (1636.7)		
2465-2474	2465 (1643.3)		
2475-2484	2475 (1650.0)		
2485-2494	2485 (1656.7)		
2495-2504	2495 (1663.3)		
2505-2514	2505 (1670.0)		
2515-2524	2515 (1676.7)		
2525-2534	2525 (1683.3)		
2535-2544	2535 (1690.0)		
2545-2554	2545 (1696.7)		
2555-2564	2555 (1703.3)		
2565-2574	2565 (1710.0)		
2575-2584	2575 (1716.7)		
2585-2594	2585 (1723.3)		
2595-2604	2595 (1730.0)		
2605-2614	2605 (1736.7)		
2615-2624	2615 (1743.3)		
2625-2634	2625 (1750.0)		
2635-2644	2635 (1756.7)		
2645-2654	2645 (1763.3)		
2655-2664	2655 (1770.0)		
2665-2674	2665 (1776.7)		
2675-2684	2675 (1783.3)		
2685-2694	2685 (1790.0)		
2695-2704	2695 (1796.7)		
2705-2714	2705 (1803.3)		
2715-2724	2715 (1810.0)		
2725-2734	2725 (1816.7)		
2735-2744	2735 (1823.3)		
2745-2754	2745 (1830.0)		
2755-2764	2755 (1836.7)		
2765-2774	2765 (1843.3)		
2775-2784	2775 (1850.0)		
2785-2794	2785 (1856.7)		
2795-2804	2795 (1863.3)		
2805-2814	2805 (1870.0)		
2815-2824	2815 (1876.7)		
2825-2834	2825 (1883.3)		
2835-2844	2835 (1890.0)		
2845-2854	2845 (1896.7)		
2855-2864	2855 (1903.3)		
2865-2874	2865 (1910.0)		
2875-2884	2875 (1916.7)		
2885-2894	2885 (1923.3)		
2895-2904	2895 (1930.0)		
2905-2914	2905 (1936.7)		
2915-2924	2915 (1943.3)		
2925-2934	2925 (1950.0)		
2935-2944	2935 (1956.7)		
2945-2954	2945 (1963.3)		
2955-2964	2955 (1970.0)		
2965-2974	2965 (1976.7)		
2975-2984	2975 (1983.3)		
2985-2994	2985 (1990.0)		
2995-3004	2995 (1996.7)		
3005-3014	3005 (2003.3)		
3015-3024	3015 (2010.0)		
3025-3034			













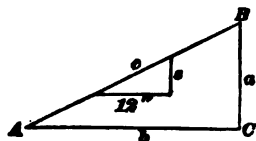


# TABLES OF ANGLES AND NATURAL AND LOGARITHMIC FUNCTIONS CORRESPONDING TO BEVELS GIVEN TO TWELVE INCHES.

The following table gives the amount and the natural and logarithmic functions of the angle whose natural tangent is the bevel, or slope, given to 12 inches. The bevels are indicated in the table by a large figure at the top of the page, which figure is to be taken in combination with the fractions at the extreme left-hand column. Opposite the fractions are given the corresponding angles and their functions, the logarithmic functions being placed on the right-hand page and the natural functions on the left-hand page.

For example, let, in the right triangle  $ABC$  of the accompanying illustration, the slope of the hypotenuse be  $4\frac{1}{2}$  inches to 12 inches. To find the angle  $A$ , refer to the pages having at the top the large figure  $4\frac{1}{2}$ , on either page of which, opposite the fraction  $\frac{1}{2}$ , the corresponding angle may be read as  $20^\circ 01' 52''$ ; the natural functions of that angle are given on the left-hand page as  $\sin A = 0.34253$ ,  $\csc A = 2.91946$ , etc., and the logarithmic functions will be found on the right-hand page as  $\log \sin A = 9.53470$ ,  $\log \csc A = 0.46530$ , etc.

Conversely, when the angle  $A$  or any of its trigonometric functions or their logarithms are known, the bevel  $s$  can be read directly from the table. When the angle  $A$  is greater than  $45^\circ$ , the complement of  $A$  should be used. The bevel  $s$  is then parallel to  $AC$  instead of to  $BC$ .



**EXAMPLE I.**—It is desired to determine the bevel  $s$  when  $b = 20' 0''$  and  $c = 23' 9''$ .

**SOLUTION.**—In this case it is convenient to use the natural secant, which is  $\frac{23.75}{20} = 1.1875$ . Referring to the table, it is found that the corresponding bevel is  $7\frac{1}{2}$ .

**EXAMPLE II.**—Let  $b = 13' 7\frac{1}{2}''$  and  $c = 20' 9\frac{1}{2}''$ . Find  $s$ .

**SOLUTION.**—In this case it is simpler to employ the logarithm of either the cosine or the secant. Using the former, we have,  $\log \cos A = \log b - \log c = 1.13367 - 1.31789 = 9.81578$ . As the cosine decreases with the increase of the angle and  $\log \cos 45^\circ = 9.84949$ ,  $A$  is greater than  $45^\circ$ , and  $s$  must be taken parallel to  $AC$ . It is evident that the bevel is then the natural tangent of  $B$ . As  $\cos A = \sin (90^\circ - A) = \sin B$ , the value  $9.81578$  just derived becomes  $\log \sin B$  and the corresponding bevel will be found in the table as  $10\frac{1}{2}$ .

When one of the sides of the right triangle  $ABC$  and the slope of the hypotenuse are given, the other two sides may be determined

by means of the following formulas, using either the natural or the logarithmic functions, whichever is more convenient to apply for the given case:

$$b = c \cos A = a \cot A \quad (1)$$

$$a = b \tan A = c \sin A \quad (2)$$

$$c = b \sec A = a \csc A \quad (3)$$

$$\text{Hence, } \log b = \log c + \log \cos A = \log a + \log \cot A \quad (4)$$

$$\log a = \log b + \log \tan A = \log c + \log \sin A \quad (5)$$

$$\log c = \log b + \log \sec A = \log a + \log \csc A \quad (6)$$

**EXAMPLE I.**—Let in the accompanying illustration,  $AC = 20$  inches and the bevel  $s = 10\frac{7}{8}$  inches to 12 inches. Find  $BC$  and  $AB$ .

**SOLUTION.**—In this case it will be more convenient to use natural functions. Applying formulas 2 and 3 and substituting for  $b$  the value of 20, and for  $\tan A$  and  $\sec A$  the proper values taken from the table, it will be found that

$$a = 20 \times .86979 = 17.3958 = 17\frac{1}{4} \text{ in.}$$

and

$$c = 20 \times 1.32534 = 26.5068 = 26\frac{1}{2} \text{ in.}$$

**EXAMPLE II.**—Let  $AC = 28' 7\frac{1}{2}"$  and  $s = 4\frac{1}{2}$  inches to 12 inches. Required,  $a$  and  $c$ .

**SOLUTION.**—In this case it will be simpler to use logarithmic functions. Applying formulas 5 and 6 and substituting the proper values, it will be found that

$$\log a = 1.42563 + 9.56180 = 0.98743 = \log 9' 8\frac{1}{8}"$$

and

$$\log c = 1.42563 + 0.02710 = 1.45273 = \log 28' 4\frac{1}{4}"$$

The parallel arrangement of the Tables of Logarithms and Squares may here be taken advantage of for checking the values of  $a$  and  $c$ . Thus, when taking from the table the logarithm of  $b$ , take at the same time its square, which in our case is 710.0004. Similarly, take the squares of  $a$  and  $c$  when obtaining their values from the table by their logarithms. In our example these squares are, respectively,  $a^2 = 94.3529$  and  $c^2 = 804.4019$ . Then, the relation  $a^2 + b^2 = c^2$  will show whether  $a$  and  $c$  were determined correctly.

In our example,

$$a^2 = 94.3529$$

$$b^2 = 710.0004$$

$$c^2 = 804.3533 = (28' 4\frac{1}{4}")^2 \text{ nearly}$$

Fraction of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.08305	12.0416	0.08333	12.0000	0.99655	1.00008	4	45	49
$\frac{1}{16}$	0.08562	11.6793	0.08594	11.6364	0.99633	1.00369	4	54	42
$\frac{1}{8}$	0.08820	11.3383	0.08854	11.2941	0.99610	1.00391	5	03	36
$\frac{3}{16}$	0.09077	11.0169	0.09115	10.9714	0.99587	1.00415	5	12	28
$\frac{1}{4}$	0.09334	10.7134	0.09375	10.6667	0.99563	1.00438	5	21	21
$\frac{5}{16}$	0.09591	10.4264	0.09635	10.3784	0.99539	1.00463	5	30	13
$\frac{3}{8}$	0.09848	10.1546	0.09896	10.1053	0.99514	1.00488	5	39	05
$\frac{7}{16}$	0.10104	9.89680	0.10156	9.84615	0.99488	1.00514	5	47	57
$\frac{1}{2}$	0.10361	9.65194	0.10417	9.60000	0.99462	1.00541	5	56	49
$\frac{9}{16}$	0.10617	9.41908	0.10677	9.36585	0.99435	1.00568	6	05	40
$\frac{5}{8}$	0.10873	9.19738	0.10938	9.14286	0.99407	1.00596	6	14	31
$\frac{11}{16}$	0.11128	8.99605	0.11198	8.93023	0.99379	1.00625	6	23	22
$\frac{3}{4}$	0.11384	8.78437	0.11458	8.72727	0.99350	1.00654	6	32	12
$\frac{13}{16}$	0.11639	8.59172	0.11719	8.53333	0.99320	1.00684	6	41	02
$\frac{7}{8}$	0.11894	8.40751	0.11979	8.34783	0.99290	1.00715	6	49	52
$\frac{15}{16}$	0.12149	8.23119	0.12240	8.17021	0.99259	1.00746	6	58	41
$\frac{1}{2}$	0.12403	8.06226	0.12500	8.00000	0.99228	1.00778	7	07	30
$\frac{17}{16}$	0.12658	7.90028	0.12760	7.83673	0.99196	1.00811	7	16	19
$\frac{9}{8}$	0.12912	7.74483	0.13021	7.68000	0.99163	1.00844	7	25	07
$\frac{19}{16}$	0.13166	7.59552	0.13281	7.52941	0.99130	1.00878	7	33	55
$\frac{5}{4}$	0.13419	7.45202	0.13542	7.38462	0.99096	1.00913	7	42	43
$\frac{21}{16}$	0.13672	7.31396	0.13802	7.24528	0.99061	1.00948	7	51	30
$\frac{11}{8}$	0.13925	7.18108	0.14063	7.11111	0.99026	1.00984	8	00	17
$\frac{23}{16}$	0.14178	7.05307	0.14323	6.98182	0.98990	1.01021	8	09	04
$\frac{3}{4}$	0.14431	6.92967	0.14583	6.85714	0.98953	1.01058	8	17	50
$\frac{25}{16}$	0.14683	6.81065	0.14844	6.73684	0.98916	1.01096	8	26	35
$\frac{13}{8}$	0.14935	6.69579	0.15104	6.62069	0.98878	1.01134	8	35	21
$\frac{27}{16}$	0.15186	6.58485	0.15365	6.50847	0.98840	1.01173	8	44	06
$\frac{7}{8}$	0.15438	6.47766	0.15625	6.40000	0.98801	1.01213	8	52	50
$\frac{29}{16}$	0.15689	6.37401	0.15885	6.29508	0.98762	1.01254	9	01	35
$\frac{15}{8}$	0.15939	6.27376	0.16146	6.19355	0.98722	1.01295	9	10	18
$\frac{31}{16}$	0.16190	6.17673	0.16406	6.09524	0.98681	1.01337	9	19	02
1	0.16440	6.08276	0.16667	6.00000	0.98639	1.01379	9	27	44

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	8.91932	1.08068	8.92082	1.07918	9.99850	0.00150	4	45	49
$\frac{1}{32}$	8.93258	1.06742	8.93418	1.06582	9.99840	0.00160	4	54	42
$\frac{1}{16}$	8.94545	1.05455	8.94715	1.05285	9.99830	0.00170	5	03	36
$\frac{3}{32}$	8.95794	1.04206	8.95974	1.04026	9.99820	0.00180	5	12	28
$\frac{1}{8}$	8.97007	1.02993	8.97197	1.02803	9.99810	0.00190	5	21	21
$\frac{5}{32}$	8.98186	1.01814	8.98387	1.01613	9.99799	0.00201	5	30	13
$\frac{3}{16}$	8.99334	1.00666	8.99545	1.00455	9.99788	0.00212	5	39	05
$\frac{7}{32}$	9.00450	0.99550	9.00673	0.99327	9.99777	0.00223	5	47	57
$\frac{1}{4}$	9.01539	0.98461	9.01773	0.98227	9.99766	0.00234	5	56	49
$\frac{9}{32}$	9.02599	0.97401	9.02845	0.97155	9.99754	0.00246	6	05	40
$\frac{5}{16}$	9.03634	0.96366	9.03892	0.96108	9.99742	0.00258	6	14	31
$\frac{11}{32}$	9.04643	0.95357	9.04914	0.95086	9.99729	0.00271	6	23	22
$\frac{3}{8}$	9.05629	0.94371	9.05912	0.94088	9.99717	0.00283	6	32	12
$\frac{13}{32}$	9.06592	0.93408	9.06888	0.93112	9.99704	0.00296	6	41	02
$\frac{7}{16}$	9.07533	0.92467	9.07843	0.92157	9.99691	0.00309	6	49	52
$\frac{15}{32}$	9.08454	0.91546	9.08777	0.91223	9.99677	0.00323	6	58	41
$\frac{1}{2}$	9.09354	0.90646	9.09691	0.90309	9.99663	0.00337	7	07	30
$\frac{17}{32}$	9.10236	0.89764	9.10586	0.89414	9.99649	0.00351	7	16	19
$\frac{9}{16}$	9.11099	0.88901	9.11464	0.88536	9.99635	0.00365	7	25	07
$\frac{19}{32}$	9.11944	0.88056	9.12324	0.87676	9.99620	0.00380	7	33	55
$\frac{5}{8}$	9.12773	0.87227	9.13167	0.86833	9.99605	0.00395	7	42	43
$\frac{21}{32}$	9.13585	0.86415	9.13994	0.86006	9.99590	0.00410	7	51	30
$\frac{11}{16}$	9.14381	0.85619	9.14806	0.85194	9.99575	0.00425	8	00	17
$\frac{23}{32}$	9.15162	0.84838	9.15603	0.84397	9.99559	0.00441	8	09	04
$\frac{3}{4}$	9.15929	0.84071	9.16386	0.83614	9.99543	0.00457	8	17	50
$\frac{25}{32}$	9.16681	0.83319	9.17154	0.82846	9.99527	0.00473	8	26	35
$\frac{13}{16}$	9.17420	0.82580	9.17910	0.82090	9.99510	0.00490	8	35	21
$\frac{27}{32}$	9.18145	0.81855	9.18652	0.81348	9.99493	0.00507	8	44	06
$\frac{7}{8}$	9.18858	0.81142	9.19382	0.80618	9.99476	0.00524	8	52	50
$\frac{29}{32}$	9.19559	0.80441	9.20100	0.79900	9.99459	0.00541	9	01	35
$\frac{15}{8}$	9.20247	0.79753	9.20806	0.79194	9.99441	0.00559	9	10	18
$\frac{31}{32}$	9.20924	0.79076	9.21501	0.78499	9.99423	0.00577	9	19	02
1	9.21590	0.78410	9.22185	0.77815	9.99405	0.00595	9	27	44

# 2"

Fraction of an Inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.16440	6.08276	0.16667	6.00000	0.98639	1.01379	9	27	44
$\frac{1}{32}$	0.16690	5.99173	0.16927	5.90769	0.98597	1.01423	9	36	27
$\frac{1}{16}$	0.16939	5.90350	0.17188	5.81818	0.98555	1.01466	9	45	09
$\frac{3}{32}$	0.17188	5.81793	0.17448	5.73134	0.98512	1.01511	9	53	50
$\frac{1}{8}$	0.17437	5.73492	0.17708	5.64706	0.98468	1.01556	10	02	31
$\frac{5}{32}$	0.17686	5.65435	0.17969	5.56522	0.98424	1.01602	10	11	12
$\frac{3}{16}$	0.17934	5.57611	0.18229	5.48571	0.98379	1.01648	10	19	52
$\frac{1}{4}$	0.18181	5.50012	0.18490	5.40845	0.98333	1.01695	10	28	32
$\frac{5}{16}$	0.18429	5.42627	0.18750	5.33333	0.98287	1.01743	10	37	11
$\frac{3}{8}$	0.18676	5.35448	0.19010	5.26027	0.98241	1.01791	10	45	49
$\frac{7}{16}$	0.18923	5.28467	0.19271	5.18919	0.98193	1.01840	10	54	28
$\frac{1}{2}$	0.19169	5.21674	0.19531	5.12000	0.98146	1.01890	11	03	05
$\frac{5}{8}$	0.19415	5.15064	0.19792	5.05263	0.98097	1.01940	11	11	42
$\frac{3}{4}$	0.19661	5.08628	0.20052	4.98701	0.98048	1.01991	11	20	19
$\frac{7}{8}$	0.19906	5.02361	0.20313	4.92308	0.97999	1.02042	11	28	55
$\frac{15}{16}$	0.20151	4.96256	0.20573	4.86076	0.97949	1.02094	11	37	31
$\frac{1}{1}$	0.20395	4.90306	0.20833	4.80000	0.97898	1.02147	11	46	06
$\frac{1}{32}$	0.20640	4.84506	0.21094	4.74074	0.97847	1.02201	11	54	40
$\frac{1}{16}$	0.20883	4.78850	0.21354	4.68293	0.97795	1.02255	12	03	14
$\frac{3}{32}$	0.21127	4.73334	0.21615	4.62651	0.97743	1.02309	12	11	48
$\frac{1}{8}$	0.21370	4.67953	0.21875	4.57143	0.97690	1.02364	12	20	21
$\frac{5}{32}$	0.21612	4.62700	0.22135	4.51765	0.97637	1.02421	12	28	53
$\frac{3}{16}$	0.21854	4.57573	0.22396	4.46512	0.97583	1.02477	12	37	25
$\frac{1}{4}$	0.22096	4.52565	0.22656	4.41379	0.97528	1.02534	12	45	56
$\frac{5}{16}$	0.22338	4.47675	0.22917	4.36364	0.97473	1.02592	12	54	27
$\frac{3}{8}$	0.22579	4.42897	0.23177	4.31461	0.97418	1.02651	13	02	57
$\frac{7}{16}$	0.22819	4.38229	0.23438	4.26667	0.97362	1.02710	13	11	26
$\frac{1}{2}$	0.23059	4.33665	0.23698	4.21978	0.97305	1.02770	13	19	55
$\frac{5}{8}$	0.23299	4.29203	0.23958	4.17391	0.97248	1.02830	13	28	23
$\frac{3}{4}$	0.23538	4.24840	0.24219	4.12903	0.97190	1.02891	13	36	51
$\frac{7}{8}$	0.23777	4.20572	0.24479	4.08511	0.97132	1.02953	13	45	18
$\frac{15}{16}$	0.24016	4.16397	0.24740	4.04211	0.97073	1.03015	13	53	45
1	0.24254	4.12311	0.25000	4.00000	0.97014	1.03078	14	02	10

Fraction of an inch	LOGARITHMIC FUNCTIONS						Ang	
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min
0	9.21590	0.78410	9.22185	0.77815	9.99405	0.00595	9	27
$\frac{1}{32}$	9.22245	0.77755	9.22858	0.77142	9.99387	0.00613	9	36
$\frac{1}{16}$	9.22889	0.77111	9.23521	0.76479	9.99368	0.00632	9	45
$\frac{3}{32}$	9.23523	0.76477	9.24174	0.75826	9.99349	0.00651	9	53
$\frac{1}{8}$	9.24147	0.75853	9.24818	0.75182	9.99330	0.00670	10	02
$\frac{5}{32}$	9.24762	0.75238	9.25452	0.74548	9.99310	0.00690	10	11
$\frac{3}{16}$	9.25367	0.74633	9.26077	0.73923	9.99290	0.00710	10	19
$\frac{7}{32}$	9.25963	0.74037	9.26693	0.73307	9.99270	0.00730	10	28
$\frac{1}{4}$	9.26550	0.73450	9.27300	0.72700	9.99250	0.00750	10	37
$\frac{9}{32}$	9.27128	0.72872	9.27899	0.72101	9.99229	0.00771	10	45
$\frac{5}{16}$	9.27698	0.72302	9.28490	0.71510	9.99208	0.00792	10	54
$\frac{11}{32}$	9.28260	0.71740	9.29073	0.70927	9.99187	0.00813	11	03
$\frac{3}{8}$	9.28814	0.71186	9.29648	0.70352	9.99166	0.00834	11	11
$\frac{13}{32}$	9.29360	0.70640	9.30216	0.69784	9.99144	0.00856	11	20
$\frac{7}{16}$	9.29898	0.70102	9.30776	0.69224	9.99122	0.00878	11	28
$\frac{15}{32}$	9.30429	0.69571	9.31330	0.68670	9.99100	0.00900	11	37
$\frac{1}{2}$	9.30953	0.69047	9.31876	0.68124	9.99077	0.00923	11	46
$\frac{17}{32}$	9.31470	0.68530	9.32415	0.67585	9.99055	0.00945	11	54
$\frac{9}{16}$	9.31980	0.68020	9.32948	0.67052	9.99032	0.00968	12	03
$\frac{19}{32}$	9.32483	0.67517	9.33475	0.66525	9.99008	0.00992	12	11
$\frac{5}{8}$	9.32980	0.67020	9.33995	0.66005	9.98985	0.01015	12	20
$\frac{21}{32}$	9.33470	0.66530	9.34509	0.65491	9.98961	0.01039	12	28
$\frac{11}{16}$	9.33954	0.66046	9.35017	0.64983	9.98937	0.01063	12	37
$\frac{23}{32}$	9.34432	0.65568	9.35519	0.64481	9.98913	0.01087	12	45
$\frac{3}{4}$	9.34904	0.65096	9.36015	0.63985	9.98889	0.01111	12	54
$\frac{25}{32}$	9.35370	0.64630	9.36506	0.63494	9.98864	0.01136	13	02
$\frac{13}{16}$	9.35830	0.64170	9.36991	0.63009	9.98839	0.01161	13	11
$\frac{27}{32}$	9.36285	0.63715	9.37471	0.62529	9.98814	0.01186	13	19
$\frac{7}{8}$	9.36734	0.63266	9.37946	0.62054	9.98788	0.01212	13	28
$\frac{29}{32}$	9.37177	0.62823	9.38415	0.61585	9.98762	0.01238	13	36
$\frac{15}{16}$	9.37616	0.62384	9.38880	0.61120	9.98736	0.01264	13	45
$\frac{31}{32}$	9.38049	0.61951	9.39339	0.60661	9.98710	0.01290	13	53
1	9.38478	0.61522	9.39794	0.60206	9.98684	0.01316	14	02



Fraction of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.24254	4.12311	0.25000	4.00000	0.97014	1.03078	14	02	10
$\frac{1}{16}$	0.24491	4.08311	0.25260	3.95876	0.96955	1.03141	14	10	36
$\frac{1}{8}$	0.24728	4.04396	0.25521	3.91837	0.96894	1.03205	14	19	00
$\frac{3}{16}$	0.24965	4.00562	0.25781	3.87879	0.96834	1.03270	14	27	24
$\frac{1}{4}$	0.25201	3.96807	0.26042	3.84000	0.96772	1.03335	14	35	48
$\frac{5}{16}$	0.25437	3.93129	0.26302	3.80198	0.96711	1.03401	14	44	10
$\frac{3}{8}$	0.25672	3.89525	0.26563	3.76471	0.96649	1.03468	14	52	32
$\frac{7}{16}$	0.25907	3.85994	0.26823	3.72816	0.96586	1.03535	15	00	54
$\frac{1}{2}$	0.26142	3.82533	0.27083	3.69231	0.96523	1.03603	15	09	15
$\frac{9}{16}$	0.26375	3.79140	0.27344	3.65714	0.96459	1.03671	15	17	35
$\frac{5}{8}$	0.26609	3.75813	0.27604	3.62264	0.96395	1.03740	15	25	54
$\frac{11}{16}$	0.26842	3.72550	0.27865	3.58879	0.96330	1.03810	15	34	13
$\frac{3}{4}$	0.27075	3.69350	0.28125	3.55556	0.96265	1.03880	15	42	31
$\frac{13}{16}$	0.27307	3.66211	0.28385	3.52294	0.96200	1.03951	15	50	49
$\frac{7}{8}$	0.27538	3.63131	0.28646	3.49091	0.96133	1.04022	15	59	05
$\frac{15}{16}$	0.27769	3.60109	0.28906	3.45946	0.96067	1.04094	16	07	21
$\frac{1}{2}$	0.28000	3.57143	0.29167	3.42857	0.96000	1.04167	16	15	37
$\frac{17}{16}$	0.28230	3.54231	0.29427	3.39823	0.95933	1.04240	16	23	51
$\frac{9}{8}$	0.28460	3.51372	0.29688	3.36842	0.95865	1.04314	16	32	05
$\frac{19}{16}$	0.28689	3.48566	0.29948	3.33913	0.95796	1.04388	16	40	19
$\frac{5}{8}$	0.28918	3.45809	0.30208	3.31034	0.95728	1.04463	16	48	31
$\frac{21}{16}$	0.29146	3.43101	0.30469	3.28205	0.95658	1.04539	16	56	43
$\frac{11}{8}$	0.29374	3.40442	0.30729	3.25424	0.95589	1.04615	17	04	54
$\frac{23}{16}$	0.29601	3.37829	0.30990	3.22689	0.95519	1.04692	17	13	05
$\frac{3}{4}$	0.29827	3.35261	0.31250	3.20000	0.95448	1.04769	17	21	14
$\frac{25}{16}$	0.30054	3.32738	0.31510	3.17355	0.95377	1.04847	17	29	23
$\frac{13}{8}$	0.30279	3.30258	0.31771	3.14754	0.95306	1.04926	17	37	32
$\frac{27}{16}$	0.30505	3.27820	0.32031	3.12195	0.95234	1.05005	17	45	39
$\frac{7}{8}$	0.30729	3.25423	0.32292	3.09677	0.95161	1.05085	17	53	46
$\frac{29}{16}$	0.30953	3.23066	0.32552	3.07200	0.95089	1.05165	18	01	52
$\frac{15}{8}$	0.31177	3.20749	0.32813	3.04762	0.95016	1.05246	18	09	57
$\frac{31}{16}$	0.31400	3.18470	0.33073	3.02362	0.94942	1.05327	18	18	02
1	0.31623	3.16228	0.33333	3.00000	0.94868	1.05409	18	26	06

3"

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	9.38478	0.61522	9.39794	0.60206	9.98684	0.01316	14	02	10
$\frac{1}{32}$	9.38901	0.61099	9.40244	0.59756	9.98657	0.01343	14	10	36
$\frac{1}{16}$	9.39319	0.60681	9.40689	0.59311	9.98630	0.01370	14	19	00
$\frac{3}{32}$	9.39733	0.60267	9.41130	0.58870	9.98603	0.01397	14	27	24
$\frac{1}{8}$	9.40142	0.59858	9.41567	0.58433	9.98575	0.01425	14	35	48
$\frac{5}{32}$	9.40546	0.59454	9.41999	0.58001	9.98547	0.01453	14	44	10
$\frac{3}{16}$	9.40946	0.59054	9.42427	0.57573	9.98520	0.01480	14	52	32
$\frac{7}{32}$	9.41342	0.58658	9.42851	0.57149	9.98491	0.01509	15	00	54
$\frac{1}{4}$	9.41733	0.58267	9.43270	0.56730	9.98463	0.01537	15	09	15
$\frac{9}{32}$	9.42120	0.57880	9.43686	0.56314	9.98434	0.01566	15	17	35
$\frac{5}{16}$	9.42503	0.57497	9.44097	0.55903	9.98405	0.01595	15	25	54
$\frac{11}{32}$	9.42881	0.57119	9.44505	0.55495	9.98376	0.01624	15	34	13
$\frac{3}{8}$	9.43256	0.56744	9.44909	0.55091	9.98347	0.01653	15	42	31
$\frac{13}{32}$	9.43627	0.56373	9.45310	0.54690	9.98317	0.01683	15	50	49
$\frac{7}{16}$	9.43994	0.56006	9.45706	0.54294	9.98287	0.01713	15	59	05
$\frac{15}{32}$	9.44357	0.55643	9.46099	0.53901	9.98257	0.01743	16	07	21
$\frac{1}{2}$	9.44716	0.55284	9.46489	0.53511	9.98227	0.01773	16	15	37
$\frac{17}{32}$	9.45071	0.54929	9.46875	0.53125	9.98197	0.01803	16	23	51
$\frac{9}{16}$	9.45423	0.54577	9.47257	0.52743	9.98166	0.01834	16	32	05
$\frac{19}{32}$	9.45772	0.54228	9.47637	0.52363	9.98135	0.01865	16	40	19
$\frac{5}{8}$	9.46116	0.53884	9.48013	0.51987	9.98104	0.01896	16	48	31
$\frac{21}{32}$	9.46458	0.53542	9.48385	0.51615	9.98072	0.01928	16	56	43
$\frac{11}{16}$	9.46796	0.53204	9.48755	0.51245	9.98041	0.01959	17	04	54
$\frac{23}{32}$	9.47130	0.52870	9.49122	0.50878	9.98009	0.01991	17	13	05
$\frac{3}{4}$	9.47462	0.52538	9.49485	0.50515	9.97977	0.02023	17	21	14
$\frac{25}{32}$	9.47790	0.52210	9.49845	0.50155	9.97944	0.02056	17	29	23
$\frac{13}{16}$	9.48115	0.51885	9.50203	0.49797	9.97912	0.02088	17	37	32
$\frac{27}{32}$	9.48436	0.51564	9.50557	0.49443	9.97879	0.02121	17	45	39
$\frac{3}{8}$	9.48755	0.51245	9.50909	0.49091	9.97846	0.02154	17	53	46
$\frac{29}{32}$	9.49071	0.50929	9.51258	0.48742	9.97813	0.02187	18	01	52
$\frac{15}{16}$	9.49383	0.50617	9.51604	0.48396	9.97780	0.02220	18	09	57
$\frac{31}{32}$	9.49693	0.50307	9.51947	0.48053	9.97746	0.02254	18	18	02
1	9.50000	0.50000	9.52288	0.47712	9.97712	0.02288	18	26	06

# 4"

Fraction of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.31623	3.16228	0.33333	3.00000	0.94868	1.05409	18	26	06
$\frac{1}{32}$	0.31845	3.14022	0.33594	2.97674	0.94794	1.05492	18	34	09
$\frac{1}{16}$	0.32066	3.11853	0.33854	2.95385	0.94719	1.05575	18	42	11
$\frac{3}{32}$	0.32287	3.09718	0.34115	2.93130	0.94644	1.05659	18	50	13
$\frac{1}{8}$	0.32508	3.07617	0.34375	2.90909	0.94569	1.05743	18	58	13
$\frac{5}{32}$	0.32728	3.05549	0.34635	2.88722	0.94493	1.05828	19	06	13
$\frac{3}{16}$	0.32947	3.03514	0.34896	2.86567	0.94416	1.05914	19	14	12
$\frac{7}{32}$	0.33166	3.01511	0.35156	2.84444	0.94340	1.06000	19	22	11
$\frac{1}{4}$	0.33385	2.99538	0.35417	2.82353	0.94263	1.06086	19	30	09
$\frac{9}{32}$	0.33603	2.97596	0.35677	2.80292	0.94185	1.06174	19	38	06
$\frac{5}{16}$	0.33820	2.95684	0.35938	2.78261	0.94107	1.06262	19	46	02
$\frac{11}{32}$	0.34037	2.93801	0.36198	2.76259	0.94029	1.06350	19	53	57
$\frac{3}{8}$	0.34253	2.91946	0.36458	2.74286	0.93951	1.06439	20	01	52
$\frac{13}{32}$	0.34469	2.90119	0.36719	2.72340	0.93872	1.06528	20	09	45
$\frac{7}{16}$	0.34684	2.88320	0.36979	2.70423	0.93793	1.06618	20	17	38
$\frac{15}{32}$	0.34898	2.86547	0.37240	2.68531	0.93713	1.06709	20	25	30
$\frac{1}{2}$	0.35112	2.84800	0.37500	2.66667	0.93633	1.06800	20	33	22
$\frac{17}{32}$	0.35326	2.83079	0.37760	2.64828	0.93553	1.06892	20	41	12
$\frac{9}{16}$	0.35539	2.81383	0.38021	2.63014	0.93472	1.06984	20	49	02
$\frac{19}{32}$	0.35751	2.79711	0.38281	2.61224	0.93391	1.07077	20	56	51
$\frac{5}{8}$	0.35963	2.78063	0.38542	2.59459	0.93310	1.07170	21	04	39
$\frac{21}{32}$	0.36174	2.76439	0.38802	2.57718	0.93228	1.07264	21	12	26
$\frac{11}{16}$	0.36385	2.74838	0.39063	2.56000	0.93146	1.07359	21	20	13
$\frac{23}{32}$	0.36595	2.73260	0.39323	2.54305	0.93063	1.07454	21	27	58
$\frac{3}{4}$	0.36805	2.71703	0.39583	2.52632	0.92981	1.07549	21	35	43
$\frac{25}{32}$	0.37014	2.70169	0.39844	2.50980	0.92898	1.07645	21	43	27
$\frac{13}{16}$	0.37222	2.68656	0.40104	2.49351	0.92814	1.07742	21	51	10
$\frac{27}{32}$	0.37430	2.67163	0.40365	2.47742	0.92731	1.07839	21	58	52
$\frac{7}{8}$	0.37638	2.65691	0.40625	2.46154	0.92647	1.07937	22	06	34
$\frac{29}{32}$	0.37844	2.64239	0.40885	2.44586	0.92562	1.08035	22	14	15
$\frac{15}{16}$	0.38051	2.62807	0.41146	2.43038	0.92478	1.08134	22	21	54
$\frac{31}{32}$	0.38256	2.61394	0.41406	2.41509	0.92393	1.08233	22	29	33
1	0.38462	2.60000	0.41667	2.40000	0.92308	1.08333	22	37	12

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	9.50000	0.50000	9.52288	0.47712	9.97712	0.02288	18	26	06
$\frac{1}{32}$	9.50304	0.49696	9.52626	0.47374	9.97678	0.02322	18	34	09
$\frac{1}{16}$	9.50605	0.49395	9.52961	0.47039	9.97644	0.02356	18	42	11
$\frac{3}{32}$	9.50903	0.49097	9.53294	0.46706	9.97609	0.02391	18	50	13
$\frac{1}{8}$	9.51199	0.48801	9.53624	0.46376	9.97575	0.02425	18	58	13
$\frac{5}{32}$	9.51492	0.48508	9.53952	0.46048	9.97540	0.02460	19	06	13
$\frac{3}{16}$	9.51782	0.48218	9.54277	0.45723	9.97505	0.02495	19	14	12
$\frac{7}{32}$	9.52070	0.47930	9.54600	0.45400	9.97469	0.02531	19	22	11
$\frac{1}{4}$	9.52355	0.47645	9.54921	0.45079	9.97434	0.02566	19	30	09
$\frac{9}{32}$	9.52637	0.47363	9.55239	0.44761	9.97398	0.02602	19	38	06
$\frac{5}{16}$	9.52917	0.47083	9.55555	0.44445	9.97362	0.02638	19	46	02
$\frac{11}{32}$	9.53195	0.46805	9.55868	0.44132	9.97326	0.02674	19	53	57
$\frac{3}{8}$	9.53470	0.46530	9.56180	0.43820	9.97290	0.02710	20	01	52
$\frac{13}{32}$	9.53742	0.46258	9.56489	0.43511	9.97254	0.02746	20	09	45
$\frac{7}{16}$	9.54013	0.45987	9.56796	0.43204	9.97217	0.02783	20	17	38
$\frac{15}{32}$	9.54280	0.45720	9.57100	0.42900	9.97180	0.02820	20	25	30
$\frac{1}{2}$	9.54546	0.45454	9.57403	0.42597	9.97143	0.02857	20	33	22
$\frac{17}{32}$	9.54809	0.45191	9.57704	0.42296	9.97106	0.02894	20	41	12
$\frac{9}{16}$	9.55070	0.44930	9.58002	0.41998	9.97068	0.02932	20	49	02
$\frac{19}{32}$	9.55329	0.44671	9.58299	0.41701	9.97030	0.02970	20	56	51
$\frac{5}{8}$	9.55586	0.44414	9.58593	0.41407	9.96993	0.03007	21	04	39
$\frac{21}{32}$	9.55840	0.44160	9.58886	0.41114	9.96955	0.03045	21	12	26
$\frac{11}{16}$	9.56092	0.43908	9.59176	0.40824	9.96916	0.03084	21	20	13
$\frac{23}{32}$	9.56342	0.43658	9.59465	0.40535	9.96878	0.03122	21	27	58
$\frac{3}{4}$	9.56591	0.43409	9.59751	0.40249	9.96839	0.03161	21	35	43
$\frac{25}{32}$	9.56836	0.43164	9.60036	0.39964	9.96800	0.03200	21	43	27
$\frac{13}{16}$	9.57080	0.42920	9.60319	0.39681	9.96761	0.03239	21	51	10
$\frac{27}{32}$	9.57322	0.42678	9.60600	0.39400	9.96722	0.03278	21	58	52
$\frac{7}{8}$	9.57562	0.42438	9.60879	0.39121	9.96683	0.03317	22	06	34
$\frac{29}{32}$	9.57800	0.42200	9.61157	0.38843	9.96643	0.03357	22	14	15
$\frac{15}{16}$	9.58036	0.41964	9.61433	0.38567	9.96604	0.03396	22	21	54
$\frac{31}{32}$	9.58270	0.41730	9.61707	0.38293	9.96564	0.03436	22	29	33
1	9.58503	0.41497	9.61979	0.38021	9.96524	0.03476	22	37	12

Fraction of an Inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.38462	2.60000	0.41667	2.40000	0.92308	1.08333	22	37	12
$\frac{1}{16}$	0.38666	2.58625	0.41927	2.38509	0.92222	1.08434	22	44	49
$\frac{1}{8}$	0.38870	2.57268	0.42188	2.37037	0.92136	1.08535	22	52	25
$\frac{3}{16}$	0.39073	2.55928	0.42448	2.35583	0.92050	1.08636	23	00	01
$\frac{1}{4}$	0.39276	2.54607	0.42708	2.34146	0.91964	1.08738	23	07	35
$\frac{5}{16}$	0.39479	2.53302	0.42969	2.32727	0.91877	1.08841	23	15	09
$\frac{3}{8}$	0.39680	2.52015	0.43229	2.31325	0.91790	1.08944	23	22	42
$\frac{7}{16}$	0.39881	2.50744	0.43490	2.29940	0.91703	1.09047	23	30	14
$\frac{1}{2}$	0.40082	2.49489	0.43750	2.28571	0.91616	1.09152	23	37	46
$\frac{9}{16}$	0.40282	2.48251	0.44010	2.27219	0.91528	1.09256	23	45	16
$\frac{5}{8}$	0.40481	2.47028	0.44271	2.25882	0.91440	1.09361	23	52	46
$\frac{11}{16}$	0.40680	2.45821	0.44531	2.24561	0.91352	1.09467	24	00	14
$\frac{3}{4}$	0.40878	2.44629	0.44792	2.23256	0.91263	1.09573	24	07	42
$\frac{13}{16}$	0.41076	2.43451	0.45052	2.21965	0.91174	1.09680	24	15	09
$\frac{7}{8}$	0.41273	2.42289	0.45313	2.20690	0.91085	1.09787	24	22	35
$\frac{15}{16}$	0.41470	2.41141	0.45573	2.19429	0.90996	1.09895	24	30	00
$\frac{1}{1}$	0.41666	2.40007	0.45833	2.18182	0.90907	1.10003	24	37	25
$\frac{17}{16}$	0.41861	2.38887	0.46094	2.16949	0.90817	1.10112	24	44	48
$\frac{9}{8}$	0.42056	2.37781	0.46354	2.15730	0.90727	1.10221	24	52	11
$\frac{19}{16}$	0.42250	2.36688	0.46615	2.14525	0.90636	1.10331	24	59	33
$\frac{5}{4}$	0.42443	2.35608	0.46875	2.13333	0.90546	1.10441	25	06	53
$\frac{21}{16}$	0.42636	2.34541	0.47135	2.12155	0.90455	1.10552	25	14	13
$\frac{11}{8}$	0.42829	2.33487	0.47396	2.10989	0.90364	1.10663	25	21	32
$\frac{23}{16}$	0.43021	2.32446	0.47656	2.09836	0.90273	1.10775	25	28	51
$\frac{3}{2}$	0.43212	2.31417	0.47917	2.08696	0.90182	1.10887	25	36	08
$\frac{25}{16}$	0.43403	2.30400	0.48177	2.07568	0.90090	1.11000	25	43	24
$\frac{13}{8}$	0.43593	2.29395	0.48438	2.06452	0.89998	1.11113	25	50	40
$\frac{27}{16}$	0.43782	2.28402	0.48698	2.05348	0.89906	1.11227	25	57	54
$\frac{7}{4}$	0.43971	2.27421	0.48958	2.04255	0.89814	1.11341	26	05	08
$\frac{29}{16}$	0.44160	2.26451	0.49219	2.03175	0.89721	1.11456	26	12	21
$\frac{15}{8}$	0.44348	2.25492	0.49479	2.02105	0.89629	1.11571	26	19	33
$\frac{31}{16}$	0.44535	2.24544	0.49740	2.01047	0.89536	1.11687	26	26	44
1	0.44721	2.23607	0.50000	2.00000	0.89443	1.11803	26	33	54

# 5"

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Co-sine.	Sec.	Deg.	Min.	Sec.
0	9.58503	0.41497	9.61979	0.38021	9.96524	0.03476	22	37	12
$\frac{1}{32}$	9.58733	0.41267	9.62249	0.37751	9.96484	0.03516	22	44	49
$\frac{1}{16}$	9.58962	0.41038	9.62518	0.37482	9.96443	0.03557	22	52	25
$\frac{3}{32}$	9.59188	0.40812	9.62786	0.37214	9.96403	0.03597	23	00	01
$\frac{1}{8}$	9.59413	0.40587	9.63051	0.36949	9.96362	0.03638	23	07	35
$\frac{5}{32}$	9.59636	0.40364	9.63315	0.36685	9.96321	0.03679	23	15	09
$\frac{3}{16}$	9.59857	0.40143	9.63578	0.36422	9.96280	0.03720	23	22	42
$\frac{7}{32}$	9.60077	0.39923	9.63839	0.36161	9.96238	0.03762	23	30	14
$\frac{1}{4}$	9.60295	0.39705	9.64098	0.35902	9.96197	0.03803	23	37	46
$\frac{9}{32}$	9.60511	0.39489	9.64356	0.35644	9.96155	0.03845	23	45	16
$\frac{5}{16}$	9.60725	0.39275	9.64612	0.35388	9.96114	0.03886	23	52	46
$\frac{11}{32}$	9.60938	0.39062	9.64866	0.35134	9.96072	0.03928	24	00	14
$\frac{3}{8}$	9.61149	0.38851	9.65120	0.34880	9.96030	0.03970	24	07	42
$\frac{13}{32}$	9.61359	0.38641	9.65371	0.34629	9.95987	0.04013	24	15	09
$\frac{7}{16}$	9.61567	0.38433	9.65622	0.34378	9.95945	0.04055	24	22	35
$\frac{15}{32}$	9.61773	0.38227	9.65871	0.34129	9.95902	0.04098	24	30	00
$\frac{1}{2}$	9.61978	0.38022	9.66118	0.33882	9.95859	0.04141	24	37	25
$\frac{17}{32}$	9.62181	0.37819	9.66364	0.33636	9.95817	0.04183	24	44	48
$\frac{9}{16}$	9.62382	0.37618	9.66609	0.33391	9.95773	0.04227	24	52	11
$\frac{19}{32}$	9.62582	0.37418	9.66852	0.33148	9.95730	0.04270	24	59	33
$\frac{5}{8}$	9.62781	0.37219	9.67094	0.32906	9.95687	0.04313	25	06	53
$\frac{21}{32}$	9.62978	0.37022	9.67335	0.32665	9.95643	0.04357	25	14	13
$\frac{11}{16}$	9.63174	0.36826	9.67574	0.32426	9.95600	0.04400	25	21	32
$\frac{23}{32}$	9.63368	0.36632	9.67812	0.32188	9.95556	0.04444	25	28	51
$\frac{3}{4}$	9.63560	0.36440	9.68049	0.31951	9.95512	0.04488	25	36	08
$\frac{25}{32}$	9.63752	0.36248	9.68284	0.31716	9.95468	0.04532	25	43	24
$\frac{13}{16}$	9.63942	0.36058	9.68518	0.31482	9.95423	0.04577	25	50	40
$\frac{27}{32}$	9.64130	0.35870	9.68751	0.31249	9.95379	0.04621	25	57	54
$\frac{7}{8}$	9.64317	0.35683	9.68983	0.31017	9.95334	0.04666	26	05	08
$\frac{29}{32}$	9.64503	0.35497	9.69213	0.30787	9.95290	0.04710	26	12	21
$\frac{15}{16}$	9.64687	0.35313	9.69442	0.30558	9.95245	0.04755	26	19	33
$\frac{31}{32}$	9.64870	0.35130	9.69670	0.30330	9.95200	0.04800	26	26	44
1	9.65051	0.34949	9.69897	0.30103	9.95154	0.04846	26	33	54

6"

Fraction of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.44721	2.23607	0.50000	2.00000	0.89443	1.11803	26	33	54
$\frac{1}{32}$	0.44907	2.22680	0.50260	1.98964	0.89349	1.11920	26	41	03
$\frac{1}{16}$	0.45093	2.21765	0.50521	1.97938	0.89256	1.12037	26	48	12
$\frac{3}{32}$	0.45278	2.20859	0.50781	1.96923	0.89162	1.12155	26	55	19
$\frac{1}{8}$	0.45462	2.19964	0.51042	1.95918	0.89069	1.12273	27	02	26
$\frac{5}{32}$	0.45646	2.19078	0.51302	1.94924	0.88975	1.12392	27	09	32
$\frac{3}{16}$	0.45829	2.18203	0.51563	1.93939	0.88880	1.12511	27	16	36
$\frac{7}{32}$	0.46011	2.17337	0.51823	1.92965	0.88786	1.12630	27	23	40
$\frac{1}{4}$	0.46193	2.16481	0.52083	1.92000	0.88691	1.12751	27	30	43
$\frac{9}{32}$	0.46375	2.15634	0.52344	1.91045	0.88597	1.12871	27	37	45
$\frac{5}{16}$	0.46556	2.14797	0.52604	1.90099	0.88502	1.12992	27	44	46
$\frac{11}{32}$	0.46736	2.13968	0.52865	1.89163	0.88407	1.13114	27	51	47
$\frac{3}{8}$	0.46916	2.13149	0.53125	1.88235	0.88312	1.13235	27	58	46
$\frac{13}{32}$	0.47095	2.12339	0.53385	1.87317	0.88216	1.13358	28	05	45
$\frac{7}{16}$	0.47273	2.11537	0.53646	1.86408	0.88121	1.13481	28	12	42
$\frac{15}{32}$	0.47451	2.10744	0.53906	1.85507	0.88025	1.13604	28	19	39
$\frac{1}{2}$	0.47628	2.09959	0.54167	1.84615	0.87929	1.13728	28	26	35
$\frac{17}{32}$	0.47805	2.09183	0.54427	1.83732	0.87833	1.13852	28	33	29
$\frac{9}{16}$	0.47981	2.08415	0.54688	1.82857	0.87737	1.13977	28	40	23
$\frac{19}{32}$	0.48157	2.07655	0.54948	1.81991	0.87641	1.14102	28	47	16
$\frac{5}{8}$	0.48332	2.06903	0.55208	1.81132	0.87545	1.14228	28	54	09
$\frac{21}{32}$	0.48506	2.06159	0.55469	1.80282	0.87448	1.14354	29	01	00
$\frac{11}{16}$	0.48680	2.05423	0.55729	1.79439	0.87351	1.14480	29	07	50
$\frac{23}{32}$	0.48853	2.04694	0.55990	1.78605	0.87254	1.14607	29	14	39
$\frac{3}{4}$	0.49026	2.03973	0.56250	1.77778	0.87158	1.14735	29	21	28
$\frac{25}{32}$	0.49198	2.03259	0.56510	1.76959	0.87061	1.14863	29	28	16
$\frac{13}{16}$	0.49370	2.02553	0.56771	1.76147	0.86963	1.14991	29	35	02
$\frac{27}{32}$	0.49541	2.01854	0.57031	1.75342	0.86866	1.15120	29	41	48
$\frac{7}{8}$	0.49711	2.01162	0.57292	1.74545	0.86769	1.15249	29	48	33
$\frac{29}{32}$	0.49881	2.00477	0.57552	1.73756	0.86671	1.15379	29	55	17
$\frac{15}{16}$	0.50050	1.99799	0.57813	1.72973	0.86573	1.15509	30	02	00
$\frac{31}{32}$	0.50219	1.99128	0.58073	1.72197	0.86476	1.15639	30	08	42
1	0.50387	1.98463	0.58333	1.71429	0.86378	1.15770	30	15	23

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	9.65051	0.34949	9.69897	0.30103	9.95154	0.04846	26	33	54
$\frac{1}{32}$	9.65232	0.34768	9.70123	0.29877	9.95109	0.04891	26	41	03
$\frac{1}{16}$	9.65411	0.34589	9.70347	0.29653	9.95064	0.04936	26	48	12
$\frac{3}{32}$	9.65588	0.34412	9.70570	0.29430	9.95018	0.04982	26	55	19
$\frac{1}{8}$	9.65765	0.34235	9.70792	0.29208	9.94972	0.05028	27	02	26
$\frac{5}{32}$	9.65940	0.34060	9.71014	0.28986	9.94927	0.05073	27	09	32
$\frac{3}{16}$	9.66114	0.33886	9.71233	0.28767	9.94881	0.05119	27	16	36
$\frac{7}{32}$	9.66287	0.33713	9.71452	0.28548	9.94834	0.05166	27	23	40
$\frac{1}{4}$	9.66458	0.33542	9.71670	0.28330	9.94789	0.05212	27	30	43
$\frac{9}{32}$	9.66628	0.33372	9.71886	0.28114	9.94742	0.05258	27	37	45
$\frac{5}{16}$	9.66797	0.33203	9.72102	0.27898	9.94695	0.05305	27	44	46
$\frac{11}{32}$	9.66965	0.33035	9.72316	0.27684	9.94649	0.05351	27	51	47
$\frac{3}{8}$	9.67132	0.32868	9.72530	0.27470	9.94602	0.05398	27	58	46
$\frac{13}{32}$	9.67297	0.32703	9.72742	0.27258	9.94555	0.05445	28	05	45
$\frac{7}{16}$	9.67461	0.32539	9.72954	0.27046	9.94508	0.05492	28	12	42
$\frac{15}{32}$	9.67625	0.32375	9.73164	0.26836	9.94461	0.05539	28	19	39
$\frac{1}{2}$	9.67787	0.32213	9.73373	0.26627	9.94413	0.05587	28	26	35
$\frac{17}{32}$	9.67947	0.32053	9.73582	0.26418	9.94366	0.05634	28	33	29
$\frac{9}{16}$	9.68107	0.31893	9.73789	0.26211	9.94318	0.05682	28	40	23
$\frac{19}{32}$	9.68266	0.31734	9.73995	0.26005	9.94271	0.05729	28	47	16
$\frac{5}{8}$	9.68423	0.31577	9.74200	0.25800	9.94223	0.05777	28	54	09
$\frac{21}{32}$	9.68580	0.31420	9.74405	0.25595	9.94175	0.05825	29	01	00
$\frac{11}{16}$	9.68735	0.31265	9.74608	0.25392	9.94127	0.05873	29	07	50
$\frac{23}{32}$	9.68889	0.31110	9.74811	0.25189	9.94079	0.05921	29	14	39
$\frac{3}{4}$	9.69043	0.30957	9.75012	0.24988	9.94031	0.05969	29	21	28
$\frac{25}{32}$	9.69195	0.30805	9.75213	0.24787	9.93982	0.06018	29	28	16
$\frac{13}{16}$	9.69346	0.30654	9.75413	0.24587	9.93934	0.06066	29	35	02
$\frac{27}{32}$	9.69496	0.30504	9.75611	0.24389	9.93885	0.06115	29	41	48
$\frac{7}{8}$	9.69645	0.30355	9.75809	0.24191	9.93836	0.06164	29	48	33
$\frac{29}{32}$	9.69794	0.30206	9.76006	0.23994	9.93787	0.06213	29	55	17
$\frac{15}{16}$	9.69941	0.30059	9.76202	0.23798	9.93738	0.06262	30	02	00
$\frac{31}{32}$	9.70087	0.29913	9.76397	0.23603	9.93689	0.06311	30	08	42
1	9.70232	0.29768	9.76592	0.23408	9.93640	0.06360	30	15	23



Fractions of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.50387	1.98463	0.58333	1.71429	0.86378	1.15770	30	15	23
$\frac{1}{32}$	0.50555	1.97806	0.58594	1.70667	0.86280	1.15902	30	22	04
$\frac{1}{16}$	0.50722	1.97155	0.58854	1.69910	0.86182	1.16034	30	28	43
$\frac{3}{32}$	0.50888	1.96510	0.59115	1.69163	0.86084	1.16166	30	35	21
$\frac{1}{8}$	0.51054	1.95871	0.59375	1.68421	0.85986	1.16299	30	41	59
$\frac{5}{32}$	0.51219	1.95239	0.59635	1.67686	0.85887	1.16432	30	48	36
$\frac{3}{16}$	0.51384	1.94614	0.59896	1.66957	0.85789	1.16566	30	55	11
$\frac{1}{4}$	0.51548	1.93994	0.60156	1.66234	0.85690	1.16700	31	01	46
$\frac{5}{16}$	0.51712	1.93380	0.60417	1.65517	0.85592	1.16834	31	08	20
$\frac{3}{8}$	0.51875	1.92773	0.60677	1.64807	0.85493	1.16969	31	14	53
$\frac{7}{16}$	0.52037	1.92171	0.60938	1.64103	0.85394	1.17104	31	21	26
$\frac{1}{2}$	0.52199	1.91575	0.61198	1.63404	0.85295	1.17240	31	27	57
$\frac{9}{16}$	0.52360	1.90985	0.61458	1.62712	0.85196	1.17376	31	34	27
$\frac{5}{8}$	0.52521	1.90400	0.61719	1.62025	0.85097	1.17513	31	40	57
$\frac{11}{16}$	0.52681	1.89821	0.61979	1.61345	0.84998	1.17650	31	47	25
$\frac{3}{4}$	0.52841	1.89248	0.62240	1.60669	0.84899	1.17787	31	53	53
$\frac{7}{8}$	0.53000	1.88680	0.62500	1.60000	0.84800	1.17925	32	00	19
$\frac{15}{16}$	0.53158	1.88117	0.62760	1.59336	0.84701	1.18063	32	06	45
$\frac{1}{2}$	0.53316	1.87560	0.63021	1.58678	0.84601	1.18202	32	13	10
$\frac{1}{4}$	0.53474	1.87008	0.63281	1.58025	0.84502	1.18341	32	19	34
$\frac{1}{8}$	0.53631	1.86461	0.63542	1.57377	0.84402	1.18480	32	25	57
$\frac{3}{16}$	0.53787	1.85919	0.63802	1.56735	0.84303	1.18620	32	32	19
$\frac{1}{4}$	0.53943	1.85382	0.64063	1.56098	0.84203	1.18760	32	38	41
$\frac{5}{16}$	0.54098	1.84850	0.64323	1.55466	0.84104	1.18901	32	45	01
$\frac{3}{8}$	0.54253	1.84323	0.64583	1.54839	0.84004	1.19042	32	51	21
$\frac{7}{16}$	0.54407	1.83801	0.64844	1.54217	0.83904	1.19184	32	57	39
$\frac{1}{2}$	0.54560	1.83284	0.65104	1.53600	0.83804	1.19325	33	03	57
$\frac{5}{8}$	0.54713	1.82771	0.65365	1.52988	0.83705	1.19468	33	10	14
$\frac{3}{4}$	0.54866	1.82263	0.65625	1.52381	0.83605	1.19610	33	16	30
$\frac{7}{8}$	0.55018	1.81760	0.65885	1.51779	0.83505	1.19753	33	22	45
$\frac{15}{16}$	0.55169	1.81261	0.66146	1.51181	0.83405	1.19897	33	28	59
$\frac{1}{2}$	0.55320	1.80767	0.66406	1.50588	0.83305	1.20041	33	35	12
1	0.55470	1.80278	0.66667	1.50000	0.83205	1.20185	33	41	24

Fraction of an Inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	9.70232	0.29768	9.76592	0.23408	9.93640	0.06360	30	15	23
$\frac{1}{32}$	9.70376	0.29624	9.76785	0.23215	9.93591	0.06409	30	22	04
$\frac{1}{16}$	9.70519	0.29481	9.76978	0.23022	9.93542	0.06458	30	28	43
$\frac{3}{32}$	9.70662	0.29338	9.77169	0.22831	9.93492	0.06508	30	35	21
$\frac{1}{8}$	9.70803	0.29197	9.77360	0.22640	9.93443	0.06557	30	41	58
$\frac{5}{32}$	9.70943	0.29057	9.77550	0.22450	9.93393	0.06607	30	48	36
$\frac{3}{16}$	9.71083	0.28917	9.77740	0.22260	9.93343	0.06657	30	55	11
$\frac{7}{32}$	9.71221	0.28779	9.77928	0.22072	9.93293	0.06707	31	01	46
$\frac{1}{4}$	9.71359	0.28641	9.78116	0.21884	9.93243	0.06757	31	08	20
$\frac{9}{32}$	9.71495	0.28505	9.78302	0.21698	9.93193	0.06807	31	14	53
$\frac{5}{16}$	9.71631	0.28369	9.78488	0.21512	9.93143	0.06857	31	21	26
$\frac{11}{32}$	9.71766	0.28234	9.78674	0.21326	9.93092	0.06908	31	27	57
$\frac{3}{8}$	9.71900	0.28100	9.78858	0.21142	9.93042	0.06958	31	34	27
$\frac{13}{32}$	9.72033	0.27967	9.79042	0.20958	9.92992	0.07008	31	40	57
$\frac{7}{16}$	9.72166	0.27834	9.79225	0.20775	9.92941	0.07059	31	47	25
$\frac{15}{32}$	9.72297	0.27703	9.79407	0.20593	9.92890	0.07110	31	53	53
$\frac{1}{2}$	9.72427	0.27573	9.79588	0.20412	9.92839	0.07161	32	00	19
$\frac{17}{32}$	9.72557	0.27443	9.79769	0.20231	9.92789	0.07211	32	06	45
$\frac{9}{16}$	9.72686	0.27314	9.79948	0.20052	9.92738	0.07262	32	13	10
$\frac{19}{32}$	9.72814	0.27186	9.80128	0.19872	9.92687	0.07313	32	19	34
$\frac{5}{8}$	9.72941	0.27059	9.80306	0.19694	9.92635	0.07365	32	25	57
$\frac{21}{32}$	9.73068	0.26932	9.80483	0.19517	9.92584	0.07416	32	32	19
$\frac{11}{16}$	9.73193	0.26807	9.80660	0.19340	9.92533	0.07467	32	38	41
$\frac{23}{32}$	9.73318	0.26682	9.80837	0.19163	9.92481	0.07519	32	45	01
$\frac{3}{4}$	9.73442	0.26558	9.81012	0.18988	9.92430	0.07570	32	51	21
$\frac{25}{32}$	9.73565	0.26435	9.81187	0.18813	9.92378	0.07622	32	57	39
$\frac{13}{16}$	9.73688	0.26312	9.81361	0.18639	9.92327	0.07673	33	03	57
$\frac{27}{32}$	9.73809	0.26191	9.81534	0.18466	9.92275	0.07725	33	10	14
$\frac{7}{8}$	9.73930	0.26070	9.81707	0.18293	9.92223	0.07777	33	16	30
$\frac{29}{32}$	9.74050	0.25950	9.81879	0.18121	9.92171	0.07829	33	22	45
$\frac{15}{16}$	9.74169	0.25831	9.82050	0.17950	9.92119	0.07881	33	28	59
$\frac{31}{32}$	9.74288	0.25712	9.82221	0.17779	9.92067	0.07933	33	35	12
1	9.74406	0.25594	9.82391	0.17609	9.92015	0.07985	33	41	24

Fraction of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.55470	1.80278	0.66667	1.50000	0.83205	1.20185	33	41	24
$\frac{1}{32}$	0.55620	1.79792	0.66927	1.49416	0.83105	1.20330	33	47	36
$\frac{1}{16}$	0.55769	1.79311	0.67188	1.48837	0.83005	1.20475	33	53	46
$\frac{3}{32}$	0.55918	1.78835	0.67448	1.48263	0.82905	1.20620	33	59	56
$\frac{1}{8}$	0.56066	1.78362	0.67708	1.47692	0.82805	1.20766	34	06	05
$\frac{5}{32}$	0.56213	1.77894	0.67969	1.47126	0.82705	1.20912	34	12	12
$\frac{3}{16}$	0.56360	1.77430	0.68229	1.46565	0.82605	1.21059	34	18	19
$\frac{1}{4}$	0.56507	1.76970	0.68490	1.46008	0.82504	1.21206	34	24	25
$\frac{5}{16}$	0.56653	1.76514	0.68750	1.45455	0.82404	1.21353	34	30	31
$\frac{3}{8}$	0.56798	1.76061	0.69010	1.44906	0.82304	1.21501	34	36	35
$\frac{7}{16}$	0.56943	1.75613	0.69271	1.44361	0.82204	1.21649	34	42	38
$\frac{1}{2}$	0.57088	1.75169	0.69531	1.43820	0.82104	1.21797	34	48	41
$\frac{9}{16}$	0.57231	1.74729	0.69792	1.43284	0.82003	1.21946	34	54	43
$\frac{5}{8}$	0.57375	1.74292	0.70052	1.42751	0.81903	1.22095	35	00	43
$\frac{11}{16}$	0.57518	1.73860	0.70313	1.42222	0.81803	1.22245	35	06	43
$\frac{3}{4}$	0.57660	1.73431	0.70573	1.41697	0.81703	1.22395	35	12	42
$\frac{13}{16}$	0.57802	1.73005	0.70833	1.41176	0.81602	1.22545	35	18	40
$\frac{7}{8}$	0.57943	1.72583	0.71094	1.40659	0.81502	1.22696	35	24	38
$\frac{15}{16}$	0.58084	1.72165	0.71354	1.40146	0.81402	1.22847	35	30	34
$\frac{1}{1}$	0.58224	1.71751	0.71615	1.39636	0.81302	1.22999	35	36	30
$\frac{1}{2}$	0.58364	1.71340	0.71875	1.39130	0.81202	1.23150	35	42	24
$\frac{1}{4}$	0.58503	1.70932	0.72135	1.38628	0.81101	1.23303	35	48	18
$\frac{1}{8}$	0.58641	1.70528	0.72396	1.38130	0.81001	1.23455	35	54	11
$\frac{1}{16}$	0.58780	1.70127	0.72656	1.37634	0.80901	1.23608	36	00	03
$\frac{1}{32}$	0.58917	1.69730	0.72917	1.37143	0.80801	1.23761	36	05	54
$\frac{1}{64}$	0.59054	1.69336	0.73177	1.36655	0.80701	1.23915	36	11	44
$\frac{1}{128}$	0.59191	1.68945	0.73438	1.36170	0.80600	1.24069	36	17	33
$\frac{1}{256}$	0.59327	1.68557	0.73698	1.35689	0.80500	1.24223	36	23	22
$\frac{1}{512}$	0.59463	1.68173	0.73958	1.35211	0.80400	1.24378	36	29	10
$\frac{1}{1024}$	0.59598	1.67791	0.74219	1.34737	0.80300	1.24533	36	34	56
$\frac{1}{2048}$	0.59732	1.67414	0.74479	1.34266	0.80200	1.24688	36	40	42
$\frac{1}{4096}$	0.59866	1.67039	0.74740	1.33798	0.80100	1.24844	36	46	27
1	0.60000	1.66667	0.75000	1.33333	0.80000	1.25000	36	52	12

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	9.74406	0.25594	9.82391	0.17609	9.92015	0.07985	33	41	24
$\frac{1}{32}$	9.74523	0.25477	9.82560	0.17440	9.91963	0.08037	33	47	36
$\frac{1}{16}$	9.74639	0.25361	9.82729	0.17271	9.91910	0.08090	33	53	46
$\frac{3}{32}$	9.74755	0.25245	9.82897	0.17103	9.91858	0.08142	33	59	56
$\frac{1}{8}$	9.74870	0.25130	9.83064	0.16936	9.91806	0.08194	34	06	05
$\frac{5}{32}$	9.74984	0.25016	9.83231	0.16769	9.91753	0.08247	34	12	12
$\frac{3}{16}$	9.75097	0.24903	9.83397	0.16603	9.91700	0.08300	34	18	19
$\frac{7}{32}$	9.75210	0.24790	9.83562	0.16438	9.91648	0.08352	34	24	25
$\frac{1}{4}$	9.75322	0.24678	9.83727	0.16273	9.91595	0.08405	34	30	31
$\frac{9}{32}$	9.75434	0.24566	9.83891	0.16109	9.91542	0.08458	34	36	35
$\frac{5}{16}$	9.75544	0.24456	9.84055	0.15945	9.91489	0.08511	34	42	38
$\frac{11}{32}$	9.75654	0.24346	9.84218	0.15782	9.91436	0.08564	34	48	41
$\frac{3}{8}$	9.75764	0.24236	9.84380	0.15620	9.91383	0.08617	34	54	43
$\frac{13}{32}$	9.75872	0.24128	9.84542	0.15458	9.91330	0.08670	35	00	43
$\frac{7}{16}$	9.75980	0.24020	9.84703	0.15297	9.91277	0.08723	35	06	43
$\frac{15}{32}$	9.76087	0.23913	9.84864	0.15136	9.91224	0.08776	35	12	42
$\frac{1}{2}$	9.76194	0.23806	9.85024	0.14976	9.91170	0.08830	35	18	40
$\frac{17}{32}$	9.76300	0.23700	9.85183	0.14817	9.91117	0.08883	35	24	38
$\frac{9}{16}$	9.76405	0.23595	9.85342	0.14658	9.91063	0.08937	35	30	34
$\frac{19}{32}$	9.76510	0.23490	9.85500	0.14500	9.91010	0.08990	35	36	30
$\frac{5}{8}$	9.76614	0.23386	9.85658	0.14342	9.90956	0.09044	35	42	24
$\frac{21}{32}$	9.76718	0.23282	9.85815	0.14185	9.90903	0.09097	35	48	18
$\frac{11}{16}$	9.76820	0.23180	9.85971	0.14029	9.90849	0.09151	35	54	11
$\frac{23}{32}$	9.76923	0.23077	9.86127	0.13873	9.90795	0.09205	36	00	03
$\frac{3}{4}$	9.77024	0.22976	9.86283	0.13717	9.90742	0.09258	36	05	54
$\frac{25}{32}$	9.77125	0.22875	9.86438	0.13562	9.90688	0.09312	36	11	44
$\frac{13}{16}$	9.77226	0.22774	9.86592	0.13408	9.90634	0.09366	36	17	33
$\frac{27}{32}$	9.77325	0.22675	9.86746	0.13254	9.90580	0.09420	36	23	22
$\frac{7}{8}$	9.77424	0.22576	9.86899	0.13101	9.90526	0.09474	36	29	10
$\frac{29}{32}$	9.77523	0.22477	9.87051	0.12949	9.90472	0.09528	36	34	56
$\frac{15}{16}$	9.77621	0.22379	9.87203	0.12797	9.90417	0.09583	36	40	42
$\frac{31}{32}$	9.77718	0.22282	9.87355	0.12645	9.90363	0.09637	36	46	27
1	9.77815	0.22185	9.87506	0.12494	9.90309	0.09691	36	52	12

Fraction of an inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.60000	1.66667	0.75000	1.33333	0.80000	1.25000	36	52	12
$\frac{1}{32}$	0.60133	1.66298	0.75260	1.32872	0.79900	1.25156	36	57	55
$\frac{1}{16}$	0.60266	1.65932	0.75521	1.32414	0.79800	1.25313	37	03	37
$\frac{3}{32}$	0.60398	1.65569	0.75781	1.31959	0.79700	1.25470	37	09	19
$\frac{1}{8}$	0.60529	1.65209	0.76042	1.31507	0.79600	1.25628	37	15	00
$\frac{5}{32}$	0.60660	1.64852	0.76302	1.31058	0.79500	1.25786	37	20	40
$\frac{3}{16}$	0.60791	1.64498	0.76563	1.30612	0.79401	1.25944	37	26	19
$\frac{1}{4}$	0.60921	1.64147	0.76823	1.30170	0.79301	1.26102	37	31	57
$\frac{5}{16}$	0.61051	1.63798	0.77083	1.29730	0.79201	1.26261	37	37	34
$\frac{3}{8}$	0.61180	1.63452	0.77344	1.29293	0.79101	1.26420	37	43	11
$\frac{7}{16}$	0.61309	1.63109	0.77604	1.28859	0.79002	1.26580	37	48	47
$\frac{1}{2}$	0.61437	1.62769	0.77865	1.28428	0.78902	1.26740	37	54	21
$\frac{5}{8}$	0.61564	1.62431	0.78125	1.28000	0.78802	1.26900	37	59	56
$\frac{3}{4}$	0.61692	1.62097	0.78385	1.27575	0.78703	1.27060	38	05	29
$\frac{7}{8}$	0.61818	1.61764	0.78646	1.27152	0.78603	1.27221	38	11	01
$\frac{15}{16}$	0.61945	1.61435	0.78906	1.26733	0.78504	1.27382	38	16	32
$\frac{1}{2}$	0.62070	1.61108	0.79167	1.26316	0.78405	1.27544	38	22	03
$\frac{17}{32}$	0.62196	1.60783	0.79427	1.25902	0.78305	1.27705	38	27	33
$\frac{9}{16}$	0.62320	1.60461	0.79688	1.25490	0.78206	1.27868	38	33	02
$\frac{19}{32}$	0.62445	1.60142	0.79948	1.25081	0.78107	1.28030	38	38	30
$\frac{5}{8}$	0.62569	1.59825	0.80208	1.24675	0.78008	1.28193	38	43	57
$\frac{21}{32}$	0.62692	1.59510	0.80469	1.24272	0.77908	1.28356	38	49	24
$\frac{11}{16}$	0.62815	1.59198	0.80729	1.23871	0.77809	1.28519	38	54	49
$\frac{23}{32}$	0.62937	1.58888	0.80990	1.23473	0.77710	1.28683	39	00	14
$\frac{3}{4}$	0.63059	1.58581	0.81250	1.23077	0.77611	1.28847	39	05	38
$\frac{25}{32}$	0.63181	1.58276	0.81510	1.22684	0.77512	1.29011	39	11	01
$\frac{13}{16}$	0.63302	1.57973	0.81771	1.22293	0.77414	1.29176	39	16	23
$\frac{27}{32}$	0.63422	1.57673	0.82031	1.21905	0.77315	1.29341	39	21	45
$\frac{7}{8}$	0.63542	1.57375	0.82292	1.21519	0.77216	1.29506	39	27	06
$\frac{29}{32}$	0.63662	1.57079	0.82552	1.21136	0.77118	1.29672	39	32	25
$\frac{15}{16}$	0.63781	1.56785	0.82813	1.20755	0.77019	1.29838	39	37	44
$\frac{31}{32}$	0.63900	1.56494	0.83073	1.20376	0.76921	1.30004	39	43	03
1	0.64018	1.56205	0.83333	1.20000	0.76822	1.30171	39	48	20

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec	Deg.	Min.	Sec.
0	9.77815	0.22185	9.87506	0.12494	9.90309	0.09691	36	52	12
$\frac{1}{32}$	9.77911	0.22089	9.87657	0.12343	9.90255	0.09745	36	57	55
$\frac{1}{16}$	9.78007	0.21993	9.87807	0.12193	9.90200	0.09800	37	03	37
$\frac{3}{32}$	9.78102	0.21898	9.87956	0.12044	9.90146	0.09854	37	09	19
$\frac{1}{8}$	9.78197	0.21803	9.88105	0.11895	9.90091	0.09909	37	15	00
$\frac{5}{32}$	9.78291	0.21709	9.88254	0.11746	9.90037	0.09963	37	20	40
$\frac{3}{16}$	9.78384	0.21616	9.88402	0.11598	9.89982	0.10018	37	26	19
$\frac{7}{32}$	9.78477	0.21523	9.88549	0.11451	9.89928	0.10072	37	31	57
$\frac{1}{4}$	9.78569	0.21431	9.88696	0.11304	9.89873	0.10127	37	37	34
$\frac{9}{32}$	9.78661	0.21339	9.88843	0.11157	9.89818	0.10182	37	43	11
$\frac{5}{16}$	9.78752	0.21248	9.88989	0.11011	9.89764	0.10236	37	48	47
$\frac{11}{32}$	9.78843	0.21157	9.89134	0.10866	9.89709	0.10291	37	54	21
$\frac{3}{8}$	9.78933	0.21067	9.89279	0.10721	9.89654	0.10346	37	59	56
$\frac{13}{32}$	9.79023	0.20977	9.89424	0.10576	9.89599	0.10401	38	05	29
$\frac{7}{16}$	9.79112	0.20888	9.89568	0.10432	9.89544	0.10456	38	11	01
$\frac{15}{32}$	9.79200	0.20800	9.89711	0.10289	9.89489	0.10511	38	16	32
$\frac{1}{2}$	9.79288	0.20712	9.89854	0.10146	9.89434	0.10566	38	22	03
$\frac{17}{32}$	9.79376	0.20624	9.89997	0.10003	9.89379	0.10621	38	27	33
$\frac{9}{16}$	9.79463	0.20537	9.90139	0.09861	9.89324	0.10676	38	33	02
$\frac{19}{32}$	9.79550	0.20450	9.90281	0.09719	9.89269	0.10731	38	38	30
$\frac{5}{8}$	9.79636	0.20364	9.90422	0.09578	9.89214	0.10786	38	43	57
$\frac{21}{32}$	9.79721	0.20279	9.90563	0.09437	9.89158	0.10842	38	49	24
$\frac{11}{16}$	9.79806	0.20194	9.90703	0.09297	9.89103	0.10897	38	54	49
$\frac{23}{32}$	9.79891	0.20109	9.90843	0.09157	9.89048	0.10952	39	00	14
$\frac{3}{4}$	9.79975	0.20025	9.90982	0.09018	9.88993	0.11007	39	05	38
$\frac{25}{32}$	9.80058	0.19942	9.91121	0.08879	9.88937	0.11063	39	11	01
$\frac{13}{16}$	9.80142	0.19858	9.91260	0.08740	9.88882	0.11118	39	16	23
$\frac{27}{32}$	9.80224	0.19776	9.91398	0.08602	9.88826	0.11174	39	21	45
$\frac{7}{8}$	9.80306	0.19694	9.91536	0.08464	9.88771	0.11229	39	27	06
$\frac{29}{32}$	9.80388	0.19612	9.91673	0.08327	9.88715	0.11285	39	32	25
$\frac{15}{16}$	9.80469	0.19531	9.91810	0.08190	9.88660	0.11340	39	37	44
$\frac{31}{32}$	9.80550	0.19450	9.91946	0.08054	9.88604	0.11396	39	43	03
1	9.80631	0.19369	9.92082	0.07918	9.88549	0.11451	39	48	20

# 10"

Fraction of an Inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.64018	1.56205	0.83333	1.20000	0.76822	1.30171	39	48	20
$\frac{1}{32}$	0.64136	1.55918	0.83594	1.19626	0.76724	1.30338	39	53	37
$\frac{1}{16}$	0.64254	1.55633	0.83854	1.19255	0.76626	1.30505	39	58	52
$\frac{3}{32}$	0.64371	1.55350	0.84115	1.18885	0.76527	1.30672	40	04	07
$\frac{1}{8}$	0.64487	1.55070	0.84375	1.18519	0.76429	1.30840	40	09	22
$\frac{5}{32}$	0.64603	1.54791	0.84635	1.18154	0.76331	1.31008	40	14	35
$\frac{3}{16}$	0.64719	1.54515	0.84896	1.17791	0.76233	1.31177	40	19	48
$\frac{7}{32}$	0.64834	1.54240	0.85156	1.17431	0.76135	1.31345	40	24	59
$\frac{1}{4}$	0.64949	1.53968	0.85417	1.17073	0.76037	1.31514	40	30	10
$\frac{9}{32}$	0.65063	1.53698	0.85677	1.16717	0.75940	1.31684	40	35	20
$\frac{5}{16}$	0.65177	1.53429	0.85938	1.16364	0.75842	1.31853	40	40	30
$\frac{11}{32}$	0.65290	1.53163	0.86198	1.16012	0.75744	1.32023	40	45	38
$\frac{3}{8}$	0.65403	1.52898	0.86458	1.15663	0.75647	1.32193	40	50	46
$\frac{13}{32}$	0.65516	1.52636	0.86719	1.15315	0.75549	1.32364	40	55	53
$\frac{7}{16}$	0.65628	1.52375	0.86979	1.14970	0.75452	1.32534	41	00	59
$\frac{15}{32}$	0.65739	1.52116	0.87240	1.14627	0.75355	1.32706	41	06	05
$\frac{1}{2}$	0.65851	1.51859	0.87500	1.14286	0.75258	1.32877	41	11	09
$\frac{17}{32}$	0.65961	1.51604	0.87760	1.13947	0.75161	1.33048	41	16	13
$\frac{9}{16}$	0.66072	1.51351	0.88021	1.13609	0.75064	1.33220	41	21	16
$\frac{19}{32}$	0.66182	1.51100	0.88281	1.13274	0.74967	1.33393	41	26	18
$\frac{5}{8}$	0.66291	1.50850	0.88542	1.12941	0.74870	1.33565	41	31	20
$\frac{21}{32}$	0.66400	1.50602	0.88802	1.12610	0.74773	1.33738	41	36	21
$\frac{11}{16}$	0.66509	1.50356	0.89063	1.12281	0.74677	1.33911	41	41	21
$\frac{23}{32}$	0.66617	1.50112	0.89323	1.11953	0.74580	1.34084	41	46	20
$\frac{3}{4}$	0.66725	1.49869	0.89583	1.11628	0.74484	1.34258	41	51	18
$\frac{25}{32}$	0.66832	1.49628	0.89844	1.11304	0.74387	1.34432	41	56	16
$\frac{13}{16}$	0.66939	1.49389	0.90104	1.10983	0.74291	1.34606	42	01	13
$\frac{27}{32}$	0.67046	1.49152	0.90365	1.10663	0.74195	1.34780	42	06	09
$\frac{7}{8}$	0.67152	1.48916	0.90625	1.10345	0.74099	1.34955	42	11	04
$\frac{29}{32}$	0.67258	1.48682	0.90885	1.10029	0.74003	1.35130	42	15	59
$\frac{15}{16}$	0.67363	1.48449	0.91146	1.09714	0.73907	1.35305	42	20	52
$\frac{31}{32}$	0.67468	1.48219	0.91406	1.09402	0.73811	1.35481	42	25	45
1	0.67572	1.47989	0.91667	1.09091	0.73715	1.35657	42	30	38

# 10"

Fraction of an inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	9.80631	0.19369	9.92082	0.07918	9.88549	0.11451	39	48	20
$\frac{1}{32}$	9.80710	0.19290	9.92217	0.07783	9.88493	0.11507	39	53	37
$\frac{1}{16}$	9.80790	0.19210	9.92352	0.07648	9.88437	0.11563	39	58	52
$\frac{3}{32}$	9.80869	0.19131	9.92487	0.07513	9.88382	0.11618	40	04	07
$\frac{1}{8}$	9.80947	0.19053	9.92621	0.07379	9.88326	0.11674	40	09	22
$\frac{5}{32}$	9.81025	0.18975	9.92755	0.07245	9.88270	0.11730	40	14	35
$\frac{3}{16}$	9.81103	0.18897	9.92889	0.07111	9.88214	0.11786	40	19	48
$\frac{7}{32}$	9.81180	0.18820	9.93022	0.06978	9.88159	0.11841	40	24	59
$\frac{1}{4}$	9.81257	0.18743	9.93154	0.06846	9.88103	0.11897	40	30	10
$\frac{9}{32}$	9.81333	0.18667	9.93286	0.06714	9.88047	0.11953	40	35	20
$\frac{5}{16}$	9.81409	0.18591	9.93418	0.06582	9.87991	0.12009	40	40	30
$\frac{11}{32}$	9.81485	0.18515	9.93550	0.06450	9.87935	0.12065	40	45	38
$\frac{3}{8}$	9.81560	0.18440	9.93681	0.06319	9.87879	0.12121	40	50	46
$\frac{13}{32}$	9.81634	0.18366	9.93811	0.06189	9.87823	0.12177	40	55	53
$\frac{7}{16}$	9.81709	0.18291	9.93942	0.06058	9.87767	0.12233	41	00	59
$\frac{15}{32}$	9.81782	0.18218	9.94071	0.05929	9.87711	0.12289	41	06	05
$\frac{1}{2}$	9.81856	0.18144	9.94201	0.05799	9.87655	0.12345	41	11	09
$\frac{17}{32}$	9.81929	0.18071	9.94330	0.05670	9.87599	0.12401	41	16	13
$\frac{9}{16}$	9.82001	0.17999	9.94459	0.05541	9.87543	0.12457	41	21	16
$\frac{19}{32}$	9.82074	0.17926	9.94587	0.05413	9.87487	0.12513	41	26	18
$\frac{5}{8}$	9.82145	0.17855	9.94715	0.05285	9.87431	0.12569	41	31	20
$\frac{21}{32}$	9.82217	0.17783	9.94842	0.05158	9.87375	0.12625	41	36	21
$\frac{11}{16}$	9.82288	0.17712	9.94969	0.05031	9.87318	0.12682	41	41	21
$\frac{23}{32}$	9.82359	0.17641	9.95096	0.04904	9.87262	0.12738	41	46	20
$\frac{3}{4}$	9.82429	0.17571	9.95223	0.04777	9.87206	0.12794	41	51	18
$\frac{25}{32}$	9.82499	0.17501	9.95349	0.04651	9.87150	0.12850	41	56	16
$\frac{13}{16}$	9.82568	0.17432	9.95474	0.04526	9.87094	0.12906	42	01	13
$\frac{27}{32}$	9.82637	0.17363	9.95600	0.04400	9.87037	0.12963	42	06	09
$\frac{7}{8}$	9.82706	0.17294	9.95725	0.04275	9.86981	0.13019	42	11	04
$\frac{29}{32}$	9.82774	0.17226	9.95849	0.04151	9.86925	0.13075	42	15	59
$\frac{15}{16}$	9.82842	0.17158	9.95974	0.04026	9.86868	0.13132	42	20	52
$\frac{31}{32}$	9.82910	0.17090	9.96098	0.03902	9.86812	0.13188	42	25	45
1	9.82977	0.17023	9.96221	0.03779	9.86756	0.13244	42	30	38



Fraction of an Inch	NATURAL FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec.	Deg.	Min.	Sec.
0	0.67572	1.47989	0.91667	1.09091	0.73715	1.35657	42	30	38
$\frac{1}{32}$	0.67677	1.47762	0.91927	1.08782	0.73620	1.35833	42	35	29
$\frac{1}{16}$	0.67780	1.47536	0.92188	1.08475	0.73524	1.36009	42	40	20
$\frac{3}{32}$	0.67884	1.47311	0.92448	1.08169	0.73429	1.36186	42	45	10
$\frac{1}{8}$	0.67987	1.47088	0.92708	1.07865	0.73334	1.36363	42	49	59
$\frac{5}{32}$	0.68089	1.46867	0.92969	1.07563	0.73239	1.36540	42	54	48
$\frac{3}{16}$	0.68191	1.46647	0.93229	1.07263	0.73144	1.36718	42	59	35
$\frac{1}{4}$	0.68293	1.46428	0.93490	1.06964	0.73049	1.36895	43	04	22
$\frac{5}{16}$	0.68394	1.46211	0.93750	1.06667	0.72954	1.37073	43	09	09
$\frac{3}{8}$	0.68495	1.45996	0.94010	1.06371	0.72859	1.37251	43	13	54
$\frac{7}{16}$	0.68596	1.45782	0.94271	1.06077	0.72764	1.37430	43	18	39
$\frac{1}{2}$	0.68696	1.45570	0.94531	1.05785	0.72670	1.37609	43	23	23
$\frac{9}{16}$	0.68795	1.45358	0.94792	1.05495	0.72575	1.37788	43	28	06
$\frac{5}{8}$	0.68895	1.45149	0.95052	1.05205	0.72481	1.37967	43	32	49
$\frac{11}{16}$	0.68994	1.44941	0.95313	1.04918	0.72387	1.38147	43	37	31
$\frac{3}{4}$	0.69092	1.44734	0.95573	1.04632	0.72293	1.38326	43	42	12
$\frac{7}{8}$	0.69191	1.44528	0.95833	1.04348	0.72199	1.38506	43	46	52
$\frac{15}{16}$	0.69288	1.44324	0.96094	1.04065	0.72105	1.38687	43	51	32
$\frac{1}{16}$	0.69386	1.44122	0.96354	1.03784	0.72011	1.38867	43	56	11
$\frac{1}{8}$	0.69483	1.43920	0.96615	1.03504	0.71918	1.39048	44	00	49
$\frac{3}{16}$	0.69580	1.43720	0.96875	1.03226	0.71824	1.39229	44	05	26
$\frac{1}{4}$	0.69676	1.43522	0.97135	1.02949	0.71731	1.39411	44	10	03
$\frac{5}{16}$	0.69772	1.43325	0.97396	1.02674	0.71637	1.39592	44	14	39
$\frac{3}{8}$	0.69867	1.43128	0.97656	1.02400	0.71544	1.39774	44	19	14
$\frac{7}{16}$	0.69963	1.42934	0.97917	1.02128	0.71451	1.39956	44	23	49
$\frac{1}{2}$	0.70057	1.42740	0.98177	1.01857	0.71358	1.40138	44	28	23
$\frac{9}{16}$	0.70152	1.42548	0.98438	1.01587	0.71265	1.40321	44	32	56
$\frac{5}{8}$	0.70246	1.42357	0.98698	1.01319	0.71172	1.40504	44	37	28
$\frac{11}{16}$	0.70340	1.42168	0.98958	1.01053	0.71080	1.40687	44	42	00
$\frac{3}{4}$	0.70433	1.41979	0.99219	1.00787	0.70987	1.40870	44	46	31
$\frac{7}{8}$	0.70526	1.41792	0.99479	1.00524	0.70895	1.41054	44	51	01
$\frac{15}{16}$	0.70618	1.41606	0.99740	1.00261	0.70803	1.41237	44	55	31
1	0.70711	1.41421	1.00000	1.00000	0.70711	1.41421	45	00	00

Fraction of an Inch	LOGARITHMIC FUNCTIONS						Angle		
	Sine.	Cosec.	Tang.	Cotang.	Cosine.	Sec	Deg.	Min.	Sec.
0	9.82977	0.17023	9.96221	0.03779	9.86756	0.13244	42	30	38
$\frac{1}{32}$	9.83044	0.16956	9.96344	0.03656	9.86699	0.13301	42	35	29
$\frac{1}{16}$	9.83110	0.16890	9.96467	0.03533	9.86643	0.13357	42	40	20
$\frac{3}{32}$	9.83177	0.16823	9.96590	0.03410	9.86587	0.13413	42	45	10
$\frac{1}{8}$	9.83242	0.16758	9.96712	0.03288	9.86530	0.13470	42	49	59
$\frac{5}{32}$	9.83308	0.16692	9.96834	0.03166	9.86474	0.13526	42	54	48
$\frac{3}{16}$	9.83373	0.16627	9.96955	0.03045	9.86418	0.13582	42	59	35
$\frac{7}{32}$	9.83437	0.16563	9.97076	0.02924	9.86361	0.13639	43	04	22
$\frac{1}{4}$	9.83502	0.16498	9.97197	0.02803	9.86305	0.13695	43	09	09
$\frac{9}{32}$	9.83566	0.16434	9.97318	0.02682	9.86248	0.13752	43	13	54
$\frac{5}{16}$	9.83630	0.16370	9.97438	0.02562	9.86192	0.13808	43	18	39
$\frac{11}{32}$	9.83693	0.16307	9.97558	0.02442	9.86135	0.13865	43	23	23
$\frac{3}{8}$	9.83756	0.16244	9.97677	0.02323	9.86079	0.13921	43	28	06
$\frac{13}{32}$	9.83819	0.16181	9.97796	0.02204	9.86022	0.13978	43	32	49
$\frac{7}{16}$	9.83881	0.16119	9.97915	0.02085	9.85966	0.14034	43	37	31
$\frac{15}{32}$	9.83943	0.16057	9.98033	0.01967	9.85909	0.14091	43	42	12
$\frac{1}{2}$	9.84005	0.15995	9.98152	0.01848	9.85853	0.14147	43	46	52
$\frac{17}{32}$	9.84066	0.15934	9.98270	0.01730	9.85797	0.14203	43	51	32
$\frac{9}{16}$	9.84127	0.15873	9.98387	0.01613	9.85740	0.14260	43	56	11
$\frac{19}{32}$	9.84188	0.15812	9.98504	0.01496	9.85683	0.14317	44	00	49
$\frac{5}{8}$	9.84248	0.15752	9.98621	0.01379	9.85627	0.14373	44	05	26
$\frac{21}{32}$	9.84308	0.15692	9.98738	0.01262	9.85570	0.14430	44	10	03
$\frac{11}{16}$	9.84368	0.15632	9.98854	0.01146	9.85514	0.14486	44	14	39
$\frac{23}{32}$	9.84427	0.15573	9.98970	0.01030	9.85457	0.14543	44	19	14
$\frac{3}{4}$	9.84487	0.15513	9.99086	0.00914	9.85401	0.14599	44	23	49
$\frac{25}{32}$	9.84545	0.15455	9.99201	0.00799	9.85344	0.14656	44	28	23
$\frac{13}{16}$	9.84604	0.15396	9.99316	0.00684	9.85288	0.14712	44	32	56
$\frac{27}{32}$	9.84662	0.15338	9.99431	0.00569	9.85231	0.14769	44	37	28
$\frac{7}{8}$	9.84720	0.15280	9.99545	0.00455	9.85175	0.14825	44	42	00
$\frac{29}{32}$	9.84778	0.15222	9.99659	0.00341	9.85118	0.14882	44	46	31
$\frac{15}{16}$	9.84835	0.15165	9.99773	0.00227	9.85062	0.14938	44	51	01
$\frac{31}{32}$	9.84892	0.15108	9.99887	0.00113	9.85005	0.14995	44	55	31
1	9.84949	0.15051	0.00000	0.00000	9.84949	0.15051	45	00	00

MULTIPLICATION TABLE FOR RIVET SPACING.

In.	1	2	3	4	5	6	7	8	9	10
1½	-1½	-2½	-3½	-4½	-5½	-6½	-7½	-9	-10½	-11½
1½	-1½	-2½	-3½	-5	-6½	-7½	-8½	-10	-11½	1-0½
1½	-1½	-2½	-4½	-5½	-6½	-8½	-9½	-11	1-0½	1-1½
1½	-1½	-3	-4½	-6	-7½	-9	-10½	1-0	1-1½	1-3
1½	-1½	-3½	-4½	-6½	-8½	-9½	-11½	1-1	1-2½	1-4½
1½	-1½	-3½	-5½	-7	-8½	-10½	1-0½	1-2	1-3½	1-5½
1½	-1½	-3½	-5½	-7½	-9½	-11½	1-1½	1-3	1-4½	1-6½
2	-2	-4	-6	-8	-10	1-0	1-2	1-4	1-6	1-8
2½	-2½	-4½	-6½	-8½	-10½	1-0½	1-2½	1-5	1-7½	1-9½
2½	-2½	-4½	-6½	-9	-11½	1-1½	1-3½	1-6	1-8½	1-10½
2½	-2½	-4½	-7½	-9½	-11½	1-2½	1-4½	1-7	1-9½	1-11½
2½	-2½	-5	-7½	-10	1-0½	1-3	1-5½	1-8	1-10½	2-1
2½	-2½	-5½	-7½	-10½	1-1½	1-3½	1-6½	1-9	1-11½	2-2½
2½	-2½	-5½	-8½	-11	1-1½	1-4½	1-7½	1-10	2-0½	2-3½
2½	-2½	-5½	-8½	-11½	1-2½	1-5½	1-8½	1-11	2-1½	2-4½
3	-3	-6	-9	1-0	1-3	1-6	1-9	2-0	2-3	2-6
3½	-3½	-6½	-9½	1-0½	1-3½	1-6½	1-9½	2-1	2-4½	2-7½
3½	-3½	-6½	-9½	1-1	1-4½	1-7½	1-10½	2-2	2-5½	2-8½
3½	-3½	-6½	-10½	1-1½	1-4½	1-8½	1-11½	2-3	2-6½	2-9½
3½	-3½	-7	-10½	1-2	1-5½	1-9	2-0½	2-4	2-7½	2-11
3½	-3½	-7½	-10½	1-2½	1-6½	1-9½	2-1½	2-5	2-8½	3-0½
3½	-3½	-7½	-11½	1-3	1-6½	1-10½	2-2½	2-6	2-9½	3-1½
3½	-3½	-7½	-11½	1-3½	1-7½	1-11½	2-3½	2-7	2-10½	3-2½
4	-4	-8	1-0	1-4	1-8	2-0	2-4	2-8	3-0	3-4
4½	-4½	-8½	1-0½	1-4½	1-8½	2-0½	2-4½	2-9	3-1½	3-5½
4½	-4½	-8½	1-0½	1-5	1-9½	2-1½	2-5½	2-10	3-2½	3-6½
4½	-4½	-8½	1-1½	1-5½	1-9½	2-2½	2-6½	2-11	3-3½	3-7½
4½	-4½	-9	1-1½	1-6	1-10½	2-3	2-7½	3-0	3-4½	3-9
4½	-4½	-9½	1-1½	1-6½	1-11½	2-3½	2-8½	3-1	3-5½	3-10½
4½	-4½	-9½	1-2½	1-7	1-11½	2-4½	2-9½	3-2	3-6½	3-11½
4½	-4½	-9½	1-2½	1-7½	2-0½	2-5½	2-10½	3-3	3-7½	4-0½
5	-5	-10	1-3	1-8	2-1	2-6	2-11	3-4	3-9	4-2
5½	-5½	-10½	1-3½	1-8½	2-1½	2-6½	2-11½	3-5	3-10½	4-3½
5½	-5½	-10½	1-3½	1-9	2-2½	2-7½	3-0½	3-6	3-11½	4-4½
5½	-5½	-10½	1-4½	1-9½	2-2½	2-8½	3-1½	3-7	4-0½	4-5½
5½	-5½	-11	1-4½	1-10	2-3½	2-9	3-2½	3-8	4-1½	4-7
5½	-5½	-11½	1-4½	1-10½	2-4½	2-9½	3-3½	3-9	4-2½	4-8½
5½	-5½	-11½	1-5½	1-11	2-4½	2-10½	3-4½	3-10	4-3½	4-9½
5½	-5½	-11½	1-5½	1-11½	2-5½	2-11½	3-5½	3-11	4-4½	4-10½
6	-6	1-0	1-6	2-0	2-6	3-0	3-6	4-0	4-6	5-0

MULTIPLICATION TABLE FOR RIVET SPACING.

In.	11	12	13	14	15	16	17	18	19	20
1½	1-0½	1-1½	1-2½	1-3½	1-4½	1-6	1-7½	1-8½	1-9½	1-10½
1½	1-1½	1-3	1-4½	1-5½	1-6½	1-8	1-9½	1-10½	1-11½	2-1
1½	1-3½	1-4½	1-5½	1-7½	1-8½	1-10	1-11½	2-0½	2-2½	2-3½
1½	1-4½	1-6	1-7½	1-9	1-10½	2-0	2-1½	2-3	2-4½	2-6
1½	1-5½	1-7½	1-9½	1-10½	2-0½	2-2	2-3½	2-5½	2-6½	2-8½
1½	1-7½	1-9	1-10½	2-0½	2-2½	2-4	2-5½	2-7½	2-9½	2-11
1½	1-8½	1-10½	2-0½	2-2½	2-4½	2-6	2-7½	2-9½	2-11½	3-1½
2	1-10	2-0	2-2	2-4	2-6	2-8	2-10	3-0	3-2	3-4
2½	1-11½	2-1½	2-3½	2-5½	2-7½	2-10	3-0½	3-2½	3-4½	3-6½
2½	2-0½	2-3	2-5½	2-7½	2-9½	3-0	3-2½	3-4½	3-6½	3-9
2½	2-2½	2-4½	2-6½	2-9½	2-11½	3-2	3-4½	3-6½	3-9½	3-11½
2½	2-3½	2-6	2-8½	2-11	3-1½	3-4	3-6½	3-9	3-11½	4-2
2½	2-4½	2-7½	2-10½	3-0½	3-3½	3-6	3-8½	3-11½	4-1½	4-4½
2½	2-6½	2-9	2-11½	3-2½	3-5½	3-8	3-10½	4-1½	4-4½	4-7
2½	2-7½	2-10½	3-1½	3-4½	3-7½	3-10	4-0½	4-3½	4-6½	4-9½
3	2-9	3-0	3-3	3-6	3-9	4-0	4-3	4-6	4-9	5-0
3½	2-10½	3-1½	3-4½	3-7½	3-10½	4-2	4-5½	4-8½	4-11½	5-2½
3½	2-11½	3-3	3-6½	3-9½	4-0½	4-4	4-7½	4-10½	5-1½	5-5
3½	3-1½	3-4½	3-7½	3-11½	4-2½	4-6	4-9½	5-0½	5-4½	5-7½
3½	3-2½	3-6	3-9½	4-1	4-4½	4-8	4-11½	5-3	5-6½	5-10
3½	3-3½	3-7½	3-11½	4-2½	4-6½	4-10	5-1½	5-5½	5-8½	6-0½
3½	3-5½	3-9	4-0½	4-4½	4-8½	5-0	5-3½	5-7½	5-11½	6-3
3½	3-6½	3-10½	4-2½	4-6½	4-10½	5-2	5-5½	5-9½	6-1½	6-5½
4	3-8	4-0	4-4	4-8	5-0	5-4	5-8	6-0	6-4	6-8
4½	3-9½	4-1½	4-5½	4-9½	5-1½	5-6	5-10½	6-2½	6-6½	6-10½
4½	3-10½	4-3	4-7½	4-11½	5-3½	5-8	6-0½	6-4½	6-8½	7-1
4½	4-0½	4-4½	4-8½	5-1½	5-5½	5-10	6-2½	6-6½	6-11½	7-3½
4½	4-1½	4-6	4-10½	5-3	5-7½	6-0	6-4½	6-9	7-1½	7-6
4½	4-2½	4-7½	5-0½	5-4½	5-9½	6-2	6-6½	6-11½	7-3½	7-8½
4½	4-4½	4-9	5-1½	5-6½	5-11½	6-4	6-8½	7-1½	7-6½	7-11
4½	4-5½	4-10½	5-3½	5-8½	6-1½	6-6	6-10½	7-3½	7-8½	8-1½
5	4-7	5-0	5-5	5-10	6-3	6-8	7-1	7-6	7-11	8-4
5½	4-8½	5-1½	5-6½	5-11½	6-4½	6-10	7-3½	7-8½	8-1½	8-6½
5½	4-9½	5-3	5-8½	6-1½	6-6½	7-0	7-5½	7-10½	8-3½	8-9
5½	4-11½	5-4½	5-9½	6-3½	6-8½	7-2	7-7½	8-0½	8-6½	8-11½
5½	5-0½	5-6	5-11½	6-5	6-10½	7-4	7-9½	8-3	8-8½	9-2
5½	5-1½	5-7½	6-1½	6-6½	7-0½	7-6	7-11½	8-5½	8-10½	9-4½
5½	5-3½	5-9	6-2½	6-8½	7-2½	7-8	8-1½	8-7½	9-1½	9-7
5½	5-4½	5-10½	6-4½	6-10½	7-4½	7-10	8-3½	8-9½	9-3½	9-9½
6	5-6	6-0	6-6	7-0	7-6	8-0	8-6	9-0	9-6	10

**MULTIPLICATION TABLE FOR RIVET SPACING.**

In.	21	22	23	24	25	26	27	28	29	30
1½	1-11½	2-0½	2-1½	2-3	2-4½	2-5½	2-6½	2-7½	2-8½	2-9½
1½	2-2½	2-3½	2-4½	2-6	2-7½	2-8½	2-9½	2-11	3-0½	3-1½
1½	2-4½	2-6½	2-7½	2-9	2-10½	2-11½	3-1½	3-2½	3-3½	3-5½
1½	2-7½	2-9	2-10½	3-0	3-1½	3-3	3-4½	3-6	3-7½	3-9
1½	2-10½	2-11½	3-1½	3-3	3-4½	3-6½	3-7½	3-9½	3-11½	4-0½
1½	3-0½	3-2½	3-4½	3-6	3-7½	3-9½	3-11½	4-1	4-2½	4-4½
1½	3-3½	3-5½	3-7½	3-9	3-10½	4-0½	4-2½	4-4½	4-6½	4-8½
2	3-6	3-8	3-10	4-0	4-2	4-4	4-6	4-8	4-10	5-0
2½	3-8½	3-10½	4-0½	4-3	4-5½	4-7½	4-9½	4-11½	5-1½	5-3½
2½	3-11½	4-1½	4-3½	4-6	4-8½	4-10½	5-0½	5-3	5-5½	5-7½
2½	4-1½	4-4½	4-6½	4-9	4-11½	5-1½	5-4½	5-6½	5-8½	5-11½
2½	4-4½	4-7	4-9½	5-0	5-2½	5-5	5-7½	5-10	6-0½	6-3
2½	4-7½	4-9½	5-0½	5-3	5-5½	5-8½	5-10½	6-1½	6-4½	6-6½
2½	4-9½	5-0½	5-3½	5-6	5-8½	5-11½	6-2½	6-5	6-7½	6-10½
2½	5-0½	5-3½	5-6½	5-9	5-11½	6-2½	6-5½	6-8½	6-11½	7-2½
3	5-3	5-6	5-9	6-0	6-3	6-6	6-9	7-0	7-3	7-6
3½	5-5½	5-8½	5-11½	6-3	6-6½	6-9½	7-0½	7-3½	7-6½	7-9½
3½	5-8½	5-11½	6-2½	6-6	6-9½	7-0½	7-3½	7-7	7-10½	8-1½
3½	5-10½	6-2½	6-5½	6-9	7-0½	7-3½	7-7½	7-10½	8-1½	8-5½
3½	6-1½	6-5	6-8½	7-0	7-3½	7-7	7-10½	8-2	8-5½	8-9
3½	6-4½	6-7½	6-11½	7-3	7-6½	7-10½	8-1½	8-5½	8-9½	9-0½
3½	6-6½	6-10½	7-2½	7-6	7-9½	8-1½	8-5½	8-9	9-0½	9-4½
3½	6-9½	7-1½	7-5½	7-9	8-0½	8-4½	8-8½	9-0½	9-4½	9-8½
4	7-0	7-4	7-8	8-0	8-4	8-8	9-0	9-4	9-8	10-0
4½	7-2½	7-6½	7-10½	8-3	8-7½	8-11½	9-3½	9-7½	9-11½	10-3½
4½	7-5½	7-9½	8-1½	8-6	8-10½	9-2½	9-6½	9-11	10-3½	10-7½
4½	7-7½	8-0½	8-4½	8-9	9-1½	9-5½	9-10½	10-2½	10-6½	10-11½
4½	7-10½	8-3	8-7½	9-0	9-4½	9-9	10-1½	10-6	10-10½	11-3
4½	8-1½	8-5½	8-10½	9-3	9-7½	10-0½	10-4½	10-9½	11-2½	11-6½
4½	8-3½	8-8½	9-1½	9-6	9-10½	10-3½	10-8½	11-1	11-5½	11-10½
4½	8-6½	8-11½	9-4½	9-9	10-1½	10-6½	10-11½	11-4½	11-9½	12-2½
5	8-9	9-2	9-7	10-0	10-5	10-10	11-3	11-8	12-1	12-6
5½	8-11½	9-4½	9-9½	10-3	10-8½	11-1½	11-6½	11-11½	12-4½	12-9½
5½	9-2½	9-7½	10-0½	10-6	10-11½	11-4½	11-9½	12-3	12-8½	13-1½
5½	9-4½	9-10½	10-3½	10-9	11-2½	11-7½	12-1½	12-6½	12-11½	13-5½
5½	9-7½	10-1	10-6½	11-0	11-5½	11-11	12-4½	12-10	13-3½	13-9
5½	9-10½	10-3½	10-9½	11-3	11-8½	12-2½	12-7½	13-1½	13-7½	14-0½
5½	10-0½	10-6½	11-0½	11-6	11-11½	12-5½	12-11½	13-5	13-10½	14-4½
5½	10-3½	10-9½	11-3½	11-9	12-2½	12-8½	13-2½	13-8½	14-2½	14-8½
6	10-6	11-0	11-6	12-0	12-6	13-0	13-6	14-0	14-6	15-0

MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	6"	6½"	6¾"	6⅝"	6¾"	6⅞"	6¾"	6⅞"
2	1-0	1-0½	1-0½	1-0½	1-1	1-1½	1-1½	1-1½
3	1-6	1-6½	1-6½	1-7½	1-7½	1-7½	1-8½	1-8½
4	2-0	2-0½	2-1	2-1½	2-2	2-2½	2-3	2-3½
5	2-6	2-6½	2-7½	2-7½	2-8½	2-9½	2-9½	2-10½
6	3-0	3-0½	3-1½	3-2½	3-3	3-3½	3-4½	3-5½
7	3-6	3-6½	3-7½	3-8½	3-9½	3-10½	3-11½	4-0½
8	4-0	4-1	4-2	4-3	4-4	4-5	4-6	4-7
9	4-6	4-7½	4-8½	4-9½	4-10½	4-11½	5-0½	5-1½
10	5-0	5-1½	5-2½	5-3½	5-5	5-6½	5-7½	5-8½
11	5-6	5-7½	5-8½	5-10½	5-11½	6-0½	6-2½	6-3½
12	6-0	6-1½	6-3	6-4½	6-6	6-7½	6-9	6-10½
13	6-6	6-7½	6-9½	6-10½	7-0½	7-2½	7-3½	7-5½
14	7-0	7-1½	7-3½	7-5½	7-7	7-8½	7-10½	8-0½
15	7-6	7-7½	7-9½	7-11½	8-1½	8-3½	8-5½	8-7½
16	8-0	8-2	8-4	8-6	8-8	8-10	9-0	9-2
17	8-6	8-8½	8-10½	9-0½	9-2½	9-4½	9-6½	9-8½
18	9-0	9-2½	9-4½	9-6½	9-9	9-11½	10-1½	10-3½
19	9-6	9-8½	9-10½	10-1½	10-3½	10-5½	10-8½	10-10½
20	10-0	10-2½	10-5	10-7½	10-10	11-0½	11-3	11-5½
No. Spaces	7"	7½"	7¾"	7⅝"	7¾"	7⅞"	7¾"	7⅞"
2	1-2	1-2½	1-2½	1-2½	1-3	1-3½	1-3½	1-3½
3	1-9	1-9½	1-9½	1-10½	1-10½	1-10½	1-11½	1-11½
4	2-4	2-4½	2-5	2-5½	2-6	2-6½	2-7	2-7½
5	2-11	2-11½	3-0½	3-0½	3-1½	3-2½	3-2½	3-3½
6	3-6	3-6½	3-7½	3-8½	3-9	3-9½	3-10½	3-11½
7	4-1	4-1½	4-2½	4-3½	4-4½	4-5½	4-6½	4-7½
8	4-8	4-9	4-10	4-11	5-0	5-1	5-2	5-3
9	5-3	5-4½	5-5½	5-6½	5-7½	5-8½	5-9½	5-10½
10	5-10	5-11½	6-0½	6-1½	6-3	6-4½	6-5½	6-6½
11	6-5	6-6½	6-7½	6-9½	6-10½	6-11½	7-1½	7-2½
12	7-0	7-1½	7-3	7-4½	7-6	7-7½	7-9	7-10½
13	7-7	7-8½	7-10½	7-11½	8-1½	8-3½	8-4½	8-6½
14	8-2	8-3½	8-5½	8-7½	8-9	8-10½	9-0½	9-2½
15	8-9	8-10½	9-0½	9-2½	9-4½	9-6½	9-8½	9-10½
16	9-4	9-6	9-8	9-10	10-0	10-2	10-4	10-6
17	9-11	10-1½	10-3½	10-5½	10-7½	10-9½	10-11½	11-1½
18	10-6	10-8½	10-10½	11-0½	11-3	11-5½	11-7½	11-9½
19	11-1	11-3½	11-5½	11-8½	11-10½	12-0½	12-3½	12-5½
20	11-8	11-10½	12-1	12-3½	12-6	12-8½	12-11	13-1½

MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	8"	8 $\frac{1}{8}$ "	8 $\frac{1}{4}$ "	8 $\frac{3}{8}$ "	8 $\frac{1}{2}$ "	8 $\frac{5}{8}$ "	8 $\frac{3}{4}$ "	8 $\frac{7}{8}$ "
2	1-4	1-4 $\frac{1}{4}$	1-4 $\frac{1}{2}$	1-4 $\frac{3}{4}$	1-5	1-5 $\frac{1}{4}$	1-5 $\frac{1}{2}$	1-5 $\frac{3}{4}$
3	2-0	2-0 $\frac{1}{4}$	2-0 $\frac{1}{2}$	2-1 $\frac{1}{4}$	2-1 $\frac{1}{2}$	2-1 $\frac{3}{4}$	2-2 $\frac{1}{4}$	2-2 $\frac{1}{2}$
4	2-8	2-8 $\frac{1}{4}$	2-9	2-9 $\frac{1}{4}$	2-10	2-10 $\frac{1}{4}$	2-11	2-11 $\frac{1}{4}$
5	3-4	3-4 $\frac{1}{4}$	3-5 $\frac{1}{4}$	3-5 $\frac{1}{2}$	3-6 $\frac{1}{4}$	3-7 $\frac{1}{4}$	3-7 $\frac{1}{2}$	3-8 $\frac{1}{4}$
6	4-0	4-0 $\frac{1}{4}$	4-1 $\frac{1}{4}$	4-2 $\frac{1}{4}$	4-3	4-3 $\frac{1}{4}$	4-4 $\frac{1}{4}$	5-4 $\frac{1}{4}$
7	4-8	4-8 $\frac{1}{4}$	4-9 $\frac{1}{4}$	4-10 $\frac{1}{4}$	4-11 $\frac{1}{4}$	5-0 $\frac{1}{4}$	5-1 $\frac{1}{4}$	5-2 $\frac{1}{4}$
8	5-4	5-5	5-6	5-7	5-8	5-9	5-10	5-11
9	6-0	6-1 $\frac{1}{4}$	6-2 $\frac{1}{4}$	6-3 $\frac{1}{4}$	6-4 $\frac{1}{4}$	6-5 $\frac{1}{4}$	6-6 $\frac{1}{4}$	6-7 $\frac{1}{4}$
10	6-8	6-9 $\frac{1}{4}$	6-10 $\frac{1}{4}$	6-11 $\frac{1}{4}$	7-1	7-2 $\frac{1}{4}$	7-3 $\frac{1}{4}$	7-4 $\frac{1}{4}$
11	7-4	7-5 $\frac{1}{4}$	7-6 $\frac{1}{4}$	7-8 $\frac{1}{4}$	7-9 $\frac{1}{4}$	7-10 $\frac{1}{4}$	8-0 $\frac{1}{4}$	8-1 $\frac{1}{4}$
12	8-0	8-1 $\frac{1}{4}$	8-3	8-4 $\frac{1}{4}$	8-6	8-7 $\frac{1}{4}$	8-9	8-10 $\frac{1}{4}$
13	8-8	8-9 $\frac{1}{4}$	8-11 $\frac{1}{4}$	9-0 $\frac{1}{4}$	9-2 $\frac{1}{4}$	9-4 $\frac{1}{4}$	9-5 $\frac{1}{4}$	9-7 $\frac{1}{4}$
14	9-4	9-5 $\frac{1}{4}$	9-7 $\frac{1}{4}$	9-9 $\frac{1}{4}$	9-11	10-0 $\frac{1}{4}$	10-2 $\frac{1}{4}$	10-4 $\frac{1}{4}$
15	10-0	10-1 $\frac{1}{4}$	10-3 $\frac{1}{4}$	10-5 $\frac{1}{4}$	10-7 $\frac{1}{4}$	10-9 $\frac{1}{4}$	10-11 $\frac{1}{4}$	11-1 $\frac{1}{4}$
16	10-8	10-10	11-0	11-2	11-4	11-6	11-8	11-10
17	11-4	11-6 $\frac{1}{4}$	11-8 $\frac{1}{4}$	11-10 $\frac{1}{4}$	12-0 $\frac{1}{4}$	12-2 $\frac{1}{4}$	12-4 $\frac{1}{4}$	12-6 $\frac{1}{4}$
18	12-0	12-2 $\frac{1}{4}$	12-4 $\frac{1}{4}$	12-6 $\frac{1}{4}$	12-9	12-11 $\frac{1}{4}$	13-1 $\frac{1}{4}$	13-3 $\frac{1}{4}$
19	12-8	12-10 $\frac{1}{4}$	13-0 $\frac{1}{4}$	13-3 $\frac{1}{4}$	13-5 $\frac{1}{4}$	13-7 $\frac{1}{4}$	13-10 $\frac{1}{4}$	14-0 $\frac{1}{4}$
20	13-4	13-6 $\frac{1}{4}$	13-9	13-11 $\frac{1}{4}$	14-2	14-4 $\frac{1}{4}$	14-7	14-9 $\frac{1}{4}$
No. Spaces	9"	9 $\frac{1}{8}$ "	9 $\frac{1}{4}$ "	9 $\frac{3}{8}$ "	9 $\frac{1}{2}$ "	9 $\frac{5}{8}$ "	9 $\frac{3}{4}$ "	9 $\frac{7}{8}$ "
2	1-6	1-6 $\frac{1}{4}$	1-6 $\frac{1}{2}$	1-6 $\frac{3}{4}$	1-7	1-7 $\frac{1}{4}$	1-7 $\frac{1}{2}$	1-7 $\frac{3}{4}$
3	2-3	2-3 $\frac{1}{4}$	2-3 $\frac{1}{2}$	2-4 $\frac{1}{4}$	2-4 $\frac{1}{2}$	2-4 $\frac{3}{4}$	2-5 $\frac{1}{4}$	2-5 $\frac{1}{2}$
4	3-0	3-0 $\frac{1}{4}$	3-1	3-1 $\frac{1}{4}$	3-2	3-2 $\frac{1}{4}$	3-3	3-3 $\frac{1}{4}$
5	3-9	3-9 $\frac{1}{4}$	3-10 $\frac{1}{4}$	3-10 $\frac{3}{4}$	3-11 $\frac{1}{4}$	4-0 $\frac{1}{4}$	4-0 $\frac{1}{2}$	4-1 $\frac{1}{4}$
6	4-6	4-6 $\frac{1}{4}$	4-7 $\frac{1}{4}$	4-8 $\frac{1}{4}$	4-9	4-9 $\frac{1}{4}$	4-10 $\frac{1}{4}$	4-11 $\frac{1}{4}$
7	5-3	5-3 $\frac{1}{4}$	5-4 $\frac{1}{4}$	5-5 $\frac{1}{4}$	5-6 $\frac{1}{4}$	5-7 $\frac{1}{4}$	5-8 $\frac{1}{4}$	5-9 $\frac{1}{4}$
8	6-0	6-1	6-2	6-3	6-4	6-5	6-6	6-7
9	6-9	6-10 $\frac{1}{4}$	6-11 $\frac{1}{4}$	7-0 $\frac{1}{4}$	7-1 $\frac{1}{4}$	7-2 $\frac{1}{4}$	7-3 $\frac{1}{4}$	7-4 $\frac{1}{4}$
10	7-6	7-7 $\frac{1}{4}$	7-8 $\frac{1}{4}$	7-9 $\frac{1}{4}$	7-11	8-0 $\frac{1}{4}$	8-1 $\frac{1}{4}$	8-2 $\frac{1}{4}$
11	8-3	8-4 $\frac{1}{4}$	8-5 $\frac{1}{4}$	8-7 $\frac{1}{4}$	8-8 $\frac{1}{4}$	8-9 $\frac{1}{4}$	8-11 $\frac{1}{4}$	9-0 $\frac{1}{4}$
12	9-0	9-1 $\frac{1}{4}$	9-3	9-4 $\frac{1}{4}$	9-6	9-7 $\frac{1}{4}$	9-9	9-10 $\frac{1}{4}$
13	9-9	9-10 $\frac{1}{4}$	10-0 $\frac{1}{4}$	10-1 $\frac{1}{4}$	10-3 $\frac{1}{4}$	10-5 $\frac{1}{4}$	10-6 $\frac{1}{4}$	10-8 $\frac{1}{4}$
14	10-6	10-7 $\frac{1}{4}$	10-9 $\frac{1}{4}$	10-11 $\frac{1}{4}$	11-1	11-2 $\frac{1}{4}$	11-4 $\frac{1}{4}$	11-6 $\frac{1}{4}$
15	11-3	11-4 $\frac{1}{4}$	11-6 $\frac{1}{4}$	11-8 $\frac{1}{4}$	11-10 $\frac{1}{4}$	12-0 $\frac{1}{4}$	12-2 $\frac{1}{4}$	12-4 $\frac{1}{4}$
16	12-0	12-2	12-4	12-6	12-8	12-10	13-0	13-2
17	12-9	12-11 $\frac{1}{4}$	13-1 $\frac{1}{4}$	13-3 $\frac{1}{4}$	13-5 $\frac{1}{4}$	13-7 $\frac{1}{4}$	13-9 $\frac{1}{4}$	13-11 $\frac{1}{4}$
18	13-6	13-8 $\frac{1}{4}$	13-10 $\frac{1}{4}$	14-0 $\frac{1}{4}$	14-3	14-5 $\frac{1}{4}$	14-7 $\frac{1}{4}$	14-9 $\frac{1}{4}$
19	14-3	14-5 $\frac{1}{4}$	14-7 $\frac{1}{4}$	14-10 $\frac{1}{4}$	15-0 $\frac{1}{4}$	15-2 $\frac{1}{4}$	15-5 $\frac{1}{4}$	15-7 $\frac{1}{4}$
20	15-0	15-2 $\frac{1}{4}$	15-5	15-7 $\frac{1}{4}$	15-10	16-0 $\frac{1}{4}$	16-3	16-5 $\frac{1}{4}$

**MULTIPLICATION TABLE FOR SPACING OF LATTICE**

No. Spaces	10"	10½"	10¾"	10⅞"	10⅞"	10⅞"	10⅞"
2	1-8	1-8½	1-8¾	1-8⅞	1-9	1-9½	1-9¾
3	2-6	2-6½	2-6¾	2-7⅛	2-7½	2-7⅞	2-8¼
4	3-4	3-4½	3-5	3-5½	3-6	3-6½	3-7
5	4-2	4-2½	4-3¼	4-3⅞	4-4½	4-5¼	4-5¾
6	5-0	5-0½	5-1¼	5-2½	5-3	5-3½	5-4¼
7	5-10	5-10½	5-11¼	6-0	6-1½	6-2½	6-3¼
8	6-8	6-9	6-10	6-11	7-0	7-1	7-2
9	7-6	7-7½	7-8¼	7-9½	7-10½	7-11½	8-0¼
10	8-4	8-5½	8-6¾	8-7⅞	8-9	8-10½	8-11½
11	9-2	9-3½	9-4¼	9-6½	9-7½	9-8½	9-10¼
12	10-0	10-1½	10-3	10-4½	10-6	10-7½	10-9
13	10-10	10-11½	11-1¼	11-2½	11-4½	11-6½	11-7½
14	11-8	11-9½	11-11½	12-1½	12-3	12-4½	12-6½
15	12-6	12-7½	12-9¼	12-11½	13-1½	13-3½	13-5½
16	13-4	13-6	13-8	13-10	14-0	14-2	14-4
17	14-2	14-4½	14-6½	14-8½	14-10½	15-0½	15-2½
18	15-0	15-2½	15-4½	15-6½	15-9	15-11½	16-1½
19	15-10	16-0½	16-2½	16-5½	16-7½	16-9½	17-0½
20	16-8	16-10½	17-1	17-3½	17-6	17-8½	17-11
No. Spaces	11"	11½"	11¾"	11⅞"	11⅞"	11⅞"	11⅞"
2	1-10	1-10½	1-10¾	1-10⅞	1-11	1-11½	1-11¾
3	2-9	2-9½	2-9¾	2-10½	2-10½	2-10⅞	2-11¼
4	3-8	3-8½	3-9	3-9½	3-10	3-10½	3-11
5	4-7	4-7½	4-8¼	4-8⅞	4-9½	4-10½	4-10¾
6	5-6	5-6½	5-7¼	5-8½	5-9	5-9½	5-10½
7	6-5	6-5½	6-6¾	6-7⅞	6-8½	6-9½	6-10½
8	7-4	7-5	7-6	7-7	7-8	7-9	7-10
9	8-3	8-4½	8-5½	8-6½	8-7½	8-8½	8-9½
10	9-2	9-3½	9-4½	9-5½	9-7	9-8½	9-9½
11	10-1	10-2½	10-3¼	10-5½	10-6½	10-7½	10-9½
12	11-0	11-1½	11-3	11-4½	11-6	11-7½	11-9
13	11-11	12-0½	12-2¼	12-3½	12-5½	12-7½	12-8½
14	12-10	12-11½	13-1½	13-3½	13-5	13-6½	13-8½
15	13-9	13-10½	14-0½	14-2½	14-4½	14-6½	14-8½
16	14-8	14-10	15-0	15-2	15-4	15-6	15-8
17	15-7	15-9½	15-11½	16-1½	16-3½	16-5½	16-7½
18	16-6	16-8½	16-10½	17-0½	17-3	17-5½	17-7½
19	17-5	17-7½	17-9½	18-0½	18-2½	18-4½	18-7½
20	18-4	18-6½	18-9	18-11½	19-2	19-4½	19-7



MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	1' 0"	1' 0 $\frac{1}{8}$ "	1' 0 $\frac{1}{4}$ "	1' 0 $\frac{3}{8}$ "	1' 0 $\frac{1}{2}$ "	1' 0 $\frac{5}{8}$ "	1' 0 $\frac{3}{4}$ "	1' 0 $\frac{7}{8}$ "
2	2-0	2-0 $\frac{1}{8}$	2-0 $\frac{1}{4}$	2-0 $\frac{3}{8}$	2-1	2-1 $\frac{1}{8}$	2-1 $\frac{1}{4}$	2-1 $\frac{1}{2}$
3	3-0	3-0 $\frac{3}{8}$	3-0 $\frac{1}{2}$	3-1 $\frac{1}{8}$	3-1 $\frac{1}{4}$	3-1 $\frac{3}{8}$	3-2 $\frac{1}{4}$	3-2 $\frac{1}{2}$
4	4-0	4-0 $\frac{1}{2}$	4-1	4-1 $\frac{1}{4}$	4-2	4-2 $\frac{1}{4}$	4-3	4-3 $\frac{1}{2}$
5	5-0	5-0 $\frac{3}{4}$	5-1 $\frac{1}{2}$	5-1 $\frac{3}{4}$	5-2 $\frac{1}{2}$	5-3 $\frac{1}{4}$	5-3 $\frac{1}{2}$	5-4 $\frac{1}{2}$
6	6-0	6-0 $\frac{3}{4}$	6-1 $\frac{3}{4}$	6-2 $\frac{1}{4}$	6-3	6-3 $\frac{1}{2}$	6-4 $\frac{1}{4}$	6-5 $\frac{1}{4}$
7	7-0	7-0 $\frac{7}{8}$	7-1 $\frac{3}{4}$	7-2 $\frac{3}{8}$	7-3 $\frac{1}{2}$	7-4 $\frac{1}{4}$	7-5 $\frac{1}{4}$	7-6 $\frac{1}{4}$
8	8-0	8-1	8-2	8-3	8-4	8-5	8-6	8-7
9	9-0	9-1 $\frac{1}{8}$	9-2 $\frac{1}{4}$	9-3 $\frac{1}{8}$	9-4 $\frac{1}{2}$	9-5 $\frac{1}{4}$	9-6 $\frac{1}{4}$	9-7 $\frac{1}{4}$
10	10-0	10-1 $\frac{1}{4}$	10-2 $\frac{1}{2}$	10-3 $\frac{1}{4}$	10-5	10-6 $\frac{1}{4}$	10-7 $\frac{1}{4}$	10-8 $\frac{1}{4}$
11	11-0	11-1 $\frac{3}{8}$	11-2 $\frac{1}{2}$	11-4 $\frac{1}{4}$	11-5 $\frac{1}{4}$	11-6 $\frac{3}{8}$	11-8 $\frac{1}{4}$	11-9 $\frac{1}{4}$
12	12-0	12-1 $\frac{1}{2}$	12-3	12-4 $\frac{1}{2}$	12-6	12-7 $\frac{1}{4}$	12-9	12-10 $\frac{1}{4}$
13	13-0	13-1 $\frac{3}{4}$	13-3 $\frac{1}{4}$	13-4 $\frac{3}{4}$	13-6 $\frac{1}{2}$	13-8 $\frac{1}{4}$	13-9 $\frac{3}{4}$	13-11 $\frac{1}{4}$
14	14-0	14-1 $\frac{3}{4}$	14-3 $\frac{3}{4}$	14-5 $\frac{1}{2}$	14-7	14-8 $\frac{3}{4}$	14-10 $\frac{1}{2}$	15-0 $\frac{1}{2}$
15	15-0	15-1 $\frac{7}{8}$	15-3 $\frac{3}{4}$	15-5 $\frac{3}{8}$	15-7 $\frac{1}{2}$	15-9 $\frac{3}{4}$	15-11 $\frac{1}{2}$	16-1 $\frac{1}{2}$
16	16-0	16-2	16-4	16-6	16-8	16-10	17-0	17-2
17	17-0	17-2 $\frac{1}{4}$	17-4 $\frac{1}{2}$	17-6 $\frac{3}{4}$	17-8 $\frac{3}{4}$	17-10 $\frac{3}{4}$	18-0 $\frac{1}{2}$	18-2 $\frac{1}{2}$
18	18-0	18-2 $\frac{1}{2}$	18-4 $\frac{3}{4}$	18-6 $\frac{3}{4}$	18-9	18-11 $\frac{1}{4}$	19-1 $\frac{1}{4}$	19-3 $\frac{1}{4}$
19	19-0	19-2 $\frac{3}{4}$	19-4 $\frac{3}{4}$	19-7 $\frac{1}{4}$	19-9 $\frac{1}{2}$	19-11 $\frac{3}{4}$	20-2 $\frac{1}{4}$	20-4 $\frac{1}{4}$
20	20-0	20-2 $\frac{3}{4}$	20-5	20-7 $\frac{1}{2}$	20-10	21-0 $\frac{1}{4}$	21-3	21-5 $\frac{1}{4}$
No. Spaces	1' 1"	1' 1 $\frac{1}{8}$ "	1' 1 $\frac{1}{4}$ "	1' 1 $\frac{3}{8}$ "	1' 1 $\frac{1}{2}$ "	1' 1 $\frac{5}{8}$ "	1' 1 $\frac{3}{4}$ "	1' 1 $\frac{7}{8}$ "
2	2-2	2-2 $\frac{1}{4}$	2-2 $\frac{1}{2}$	2-2 $\frac{3}{4}$	2-3	2-3 $\frac{1}{4}$	2-3 $\frac{1}{2}$	2-3 $\frac{3}{4}$
3	3-3	3-3 $\frac{3}{8}$	3-3 $\frac{1}{2}$	3-4 $\frac{1}{4}$	3-4 $\frac{1}{2}$	3-4 $\frac{3}{4}$	3-5 $\frac{1}{4}$	3-5 $\frac{3}{8}$
4	4-4	4-4 $\frac{1}{2}$	4-5	4-5 $\frac{1}{4}$	4-6	4-6 $\frac{1}{4}$	4-7	4-7 $\frac{1}{4}$
5	5-5	5-5 $\frac{1}{2}$	5-6 $\frac{1}{4}$	5-6 $\frac{3}{4}$	5-7 $\frac{1}{2}$	5-8 $\frac{1}{4}$	5-8 $\frac{3}{4}$	5-9 $\frac{1}{4}$
6	6-6	6-6 $\frac{3}{4}$	6-7 $\frac{1}{4}$	6-8 $\frac{1}{4}$	6-9	6-9 $\frac{3}{4}$	6-10 $\frac{1}{4}$	6-11 $\frac{1}{4}$
7	7-7	7-7 $\frac{1}{4}$	7-8 $\frac{1}{2}$	7-9 $\frac{1}{4}$	7-10 $\frac{1}{4}$	7-11 $\frac{1}{4}$	8-0 $\frac{1}{4}$	8-1 $\frac{1}{4}$
8	8-8	8-9	8-10	8-11	9-0	9-1	9-2	9-3
9	9-9	9-10 $\frac{1}{4}$	9-11 $\frac{1}{4}$	10-0 $\frac{1}{4}$	10-1 $\frac{1}{4}$	10-2 $\frac{1}{4}$	10-3 $\frac{1}{4}$	10-4 $\frac{1}{4}$
10	10-10	10-11 $\frac{1}{4}$	11-0 $\frac{1}{4}$	11-1 $\frac{1}{4}$	11-3	11-4 $\frac{1}{4}$	11-5 $\frac{1}{4}$	11-6 $\frac{1}{4}$
11	11-11	12-0 $\frac{1}{4}$	12-1 $\frac{1}{4}$	12-3 $\frac{1}{4}$	12-4 $\frac{1}{4}$	12-5 $\frac{1}{4}$	12-7 $\frac{1}{4}$	12-8 $\frac{1}{4}$
12	13-0	13-1 $\frac{1}{4}$	13-3	13-4 $\frac{1}{4}$	13-6	13-7 $\frac{1}{4}$	13-9	13-10 $\frac{1}{4}$
13	14-1	14-2 $\frac{1}{4}$	14-4 $\frac{1}{4}$	14-5 $\frac{1}{4}$	14-7 $\frac{1}{4}$	14-9 $\frac{1}{4}$	14-10 $\frac{1}{4}$	15-0 $\frac{1}{4}$
14	15-2	15-3 $\frac{1}{4}$	15-5 $\frac{1}{4}$	15-7 $\frac{1}{4}$	15-9	15-10 $\frac{1}{4}$	16-0 $\frac{1}{4}$	16-2 $\frac{1}{4}$
15	16-3	16-4 $\frac{1}{4}$	16-6 $\frac{1}{4}$	16-8 $\frac{1}{4}$	16-10 $\frac{1}{4}$	17-0 $\frac{1}{4}$	17-2 $\frac{1}{4}$	17-4 $\frac{1}{4}$
16	17-4	17-6	17-8	17-10	18-0	18-2	18-4	18-6
17	18-5	18-7 $\frac{1}{4}$	18-9 $\frac{1}{4}$	18-11 $\frac{1}{4}$	19-1 $\frac{1}{4}$	19-3 $\frac{1}{4}$	19-5 $\frac{1}{4}$	19-7 $\frac{1}{4}$
18	19-6	19-8 $\frac{1}{4}$	19-10 $\frac{1}{4}$	20-0 $\frac{1}{4}$	20-3	20-5 $\frac{1}{4}$	20-7 $\frac{1}{4}$	20-9 $\frac{1}{4}$
19	20-7	20-9 $\frac{1}{4}$	20-11 $\frac{1}{4}$	21-2 $\frac{1}{4}$	21-4 $\frac{1}{4}$	21-6 $\frac{1}{4}$	21-9 $\frac{1}{4}$	21-11 $\frac{1}{4}$
20	21-8	21-10 $\frac{1}{4}$	22-1	22-3 $\frac{1}{4}$	22-6	22-8 $\frac{1}{4}$	22-11	23-1 $\frac{1}{4}$

MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	1' 2"	1' 2½"	1' 2¾"	1' 2⅞"	1' 2⅞"	1' 2⅞"	1' 2⅞"	1' 2⅞"
2	2-4	2-4½	2-4½	2-4½	2-5	2-5½	2-5½	2-5½
3	3-6	3-6½	3-6½	3-7	3-7½	3-7½	3-8	3-8½
4	4-8	4-8½	4-9	4-9½	4-10	4-10½	4-11	4-11½
5	5-10	5-10½	5-11½	5-11½	6-0½	6-1	6-1½	6-2
6	7-0	7-0½	7-1½	7-2½	7-3	7-3½	7-4½	7-5½
7	8-2	8-2½	8-3½	8-4½	8-5½	8-6½	8-7½	8-8½
8	9-4	9-5	9-6	9-7	9-8	9-9	9-10	9-11
9	10-6	10-7½	10-8½	10-9½	10-10½	10-11½	11-0½	11-1½
10	11-8	11-9½	11-10½	11-11½	12-1	12-2½	12-3½	12-4½
11	12-10	12-11½	13-0½	13-2½	13-3½	13-4½	13-6½	13-7½
12	14-0	14-1½	14-3	14-4½	14-6	14-7½	14-9	14-10½
13	15-2	15-3½	15-5½	15-6½	15-8½	15-10½	15-11½	16-1½
14	16-4	16-5½	16-7½	16-9½	16-11	17-0½	17-2½	17-4½
15	17-6	17-7½	17-9½	17-11½	18-1½	18-3½	18-5½	18-7½
16	18-8	18-10	19-0	19-2	19-4	19-6	19-8	19-10
17	19-10	20-0½	20-2½	20-4½	20-6½	20-8½	20-10½	21-0½
18	21-0	21-2½	21-4½	21-6½	21-9	21-11½	22-1½	22-3½
19	22-2	22-4½	22-6½	22-9½	22-11½	23-1½	23-4½	23-6½
20	23-4	23-6½	23-9	23-11½	24-2	24-4½	24-7	24-9½
No. Spaces	1' 3"	1' 3½"	1' 3¾"	1' 3⅞"	1' 3⅞"	1' 3⅞"	1' 3⅞"	1' 3⅞"
2	2-6	2-6½	2-6½	2-6½	2-7	2-7½	2-7½	2-7½
3	3-9	3-9½	3-9½	3-10½	3-10½	3-10½	3-11½	3-11½
4	5-0	5-0½	5-1	5-1½	5-2	5-2½	5-3	5-3½
5	6-3	6-3½	6-4½	6-4½	6-5½	6-6½	6-6½	6-7½
6	7-6	7-6½	7-7½	7-8½	7-9	7-9½	7-10½	7-11½
7	8-9	8-9½	8-10½	8-11½	9-0½	9-1½	9-2½	9-3½
8	10-0	10-1	10-2	10-3	10-4	10-5	10-6	10-7
9	11-3	11-4½	11-5½	11-6½	11-7½	11-8½	11-9½	11-10½
10	12-6	12-7½	12-8½	12-9½	12-11	13-0½	13-1½	13-2½
11	13-9	13-10½	13-11½	14-1½	14-2½	14-3½	14-5½	14-6½
12	15-0	15-1½	15-3	15-4½	15-6	15-7½	15-9	15-10½
13	16-3	16-4½	16-6½	16-7½	16-9½	16-11½	17-0½	17-2½
14	17-6	17-7½	17-9½	17-11½	18-1	18-2½	18-4½	18-6½
15	18-9	18-10½	19-0½	19-2½	19-4½	19-6½	19-8½	19-10½
16	20-0	20-2	20-4	20-6	20-8	20-10	21-0	21-2
17	21-3	21-5½	21-7½	21-9½	21-11½	22-1½	22-3½	22-5½
18	22-6	22-8½	22-10½	23-0½	23-3	23-5½	23-7½	23-9½
19	23-9	23-11½	24-1½	24-4½	24-6½	24-8½	24-11½	25-1½
20	25-0	25-2½	25-5	25-7½	25-10	26-0½	26-3	26-5½

**MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS**

No. Spaces	1' 4"	1' 4½"	1' 4¾"	1' 4⅝"	1' 4⅜"	1' 4⅙"	1' 4⅕"	1' 4⅔"
2	2-8	2-8½	2-8¾	2-8⅝	2-9	2-9½	2-9¾	2-9⅝
3	4-0	4-0½	4-0¾	4-1	4-1½	4-1¾	4-2	4-2½
4	5-4	5-4½	5-5	5-5½	5-6	5-6½	5-7	5-7½
5	6-8	6-8½	6-9	6-9½	6-10	6-11	6-11½	7-0
6	8-0	8-0½	8-1	8-2	8-3	8-3½	8-4	8-5
7	9-4	9-4½	9-5	9-6	9-7	9-8	9-9	9-10
8	10-8	10-9	10-10	10-11	11-0	11-1	11-2	11-3
9	12-0	12-1	12-2	12-3	12-4	12-5	12-6	12-7
10	13-4	13-5	13-6	13-7	13-9	13-10	13-11	14-0
11	14-8	14-9	14-10	15-0	15-1	15-2	15-4	15-5
12	16-0	16-1	16-3	16-4	16-6	16-7	16-9	16-10
13	17-4	17-5	17-7	17-8	17-10	18-0	18-1	18-3
14	18-8	18-9	18-11	19-1	19-3	19-4	19-6	19-8
15	20-0	20-1	20-3	20-5	20-7	20-9	20-11	21-1
16	21-4	21-6	21-8	21-10	22-0	22-2	22-4	22-6
17	22-8	22-10	23-0	23-2	23-4	23-6	23-8	23-10
18	24-0	24-2	24-4	24-6	24-9	24-11	25-1	25-3
19	25-4	25-6	25-8	25-11	26-1	26-3	26-6	26-8
20	26-8	26-10	27-1	27-3	27-6	27-8	27-11	28-1
No. Spaces	1' 5"	1' 5½"	1' 5¾"	1' 5⅝"	1' 5⅜"	1' 5⅙"	1' 5⅕"	1' 5⅔"
2	2-10	2-10½	2-10¾	2-10⅝	2-11	2-11½	2-11¾	2-11⅝
3	4-3	4-3½	4-3¾	4-4	4-4½	4-4¾	4-5	4-5½
4	5-8	5-8½	5-9	5-9½	5-10	5-10½	5-11	5-11½
5	7-1	7-1½	7-2	7-2½	7-3	7-4	7-4½	7-5
6	8-6	8-6½	8-7	8-8	8-9	8-9½	8-10	8-11
7	9-11	9-11½	10-0	10-1	10-2	10-3	10-4	10-5
8	11-4	11-5	11-6	11-7	11-8	11-9	11-10	11-11
9	12-9	12-10	12-11	13-0	13-1	13-2	13-3	13-4
10	14-2	14-3	14-4	14-5	14-7	14-8	14-9	14-10
11	15-7	15-8	15-9	15-11	16-0	16-1	16-3	16-4
12	17-0	17-1	17-3	17-4	17-6	17-7	17-9	17-10
13	18-5	18-6	18-8	18-9	18-11	19-1	19-2	19-4
14	19-10	19-11	20-1	20-3	20-5	20-6	20-8	20-10
15	21-3	21-4	21-6	21-8	21-10	22-0	22-2	22-4
16	22-8	22-10	23-0	23-2	23-4	23-6	23-8	23-10
17	24-1	24-3	24-5	24-7	24-9	24-11	25-1	25-3
18	25-6	25-8	25-10	26-0	26-3	26-5	26-7	26-9
19	26-11	27-1	27-3	27-6	27-8	27-10	28-1	28-3
20	28-4	28-6	28-9	28-11	29-2	29-4	29-7	29-9

MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	1' 6"	1' 6 $\frac{1}{8}$ "	1' 6 $\frac{1}{4}$ "	1' 6 $\frac{3}{8}$ "	1' 6 $\frac{1}{2}$ "	1' 6 $\frac{5}{8}$ "	1' 6 $\frac{3}{4}$ "	1' 6 $\frac{7}{8}$ "
2	3-0	3-0 $\frac{1}{8}$	3-0 $\frac{1}{4}$	3-0 $\frac{3}{8}$	3-1	3-1 $\frac{1}{8}$	3-1 $\frac{1}{4}$	3-1 $\frac{3}{8}$
3	4-6	4-6 $\frac{1}{8}$	4-6 $\frac{1}{4}$	4-7 $\frac{1}{8}$	4-7 $\frac{1}{4}$	4-7 $\frac{3}{8}$	4-8 $\frac{1}{8}$	4-8 $\frac{3}{8}$
4	6-0	6-0 $\frac{1}{8}$	6-1	6-1 $\frac{1}{8}$	6-2	6-2 $\frac{1}{8}$	6-3	6-3 $\frac{1}{8}$
5	7-6	7-6 $\frac{1}{8}$	7-7 $\frac{1}{4}$	7-7 $\frac{3}{8}$	7-8 $\frac{1}{4}$	7-9 $\frac{1}{8}$	7-9 $\frac{3}{8}$	7-10 $\frac{1}{8}$
6	9-0	9-0 $\frac{1}{8}$	9-1 $\frac{1}{4}$	9-2 $\frac{1}{8}$	9-3	9-3 $\frac{1}{8}$	9-4 $\frac{1}{4}$	9-5 $\frac{1}{8}$
7	10-6	10-6 $\frac{1}{8}$	10-7 $\frac{1}{4}$	10-8 $\frac{1}{8}$	10-9 $\frac{1}{4}$	10-10 $\frac{1}{8}$	10-11 $\frac{1}{4}$	11-0 $\frac{1}{8}$
8	12-0	12-1	12-2	12-3	12-4	12-5	12-6	12-7
9	13-6	13-7 $\frac{1}{8}$	13-8 $\frac{1}{4}$	13-9 $\frac{1}{8}$	13-10 $\frac{1}{4}$	13-11 $\frac{1}{8}$	14-0 $\frac{1}{4}$	14-1 $\frac{1}{8}$
10	15-0	15-1 $\frac{1}{8}$	15-2 $\frac{1}{4}$	15-3 $\frac{1}{8}$	15-5	15-6 $\frac{1}{8}$	15-7 $\frac{1}{4}$	15-8 $\frac{1}{8}$
11	16-6	16-7 $\frac{1}{8}$	16-8 $\frac{1}{4}$	16-10 $\frac{1}{8}$	16-11 $\frac{1}{4}$	17-0 $\frac{1}{8}$	17-2 $\frac{1}{4}$	17-3 $\frac{1}{8}$
12	18-0	18-1 $\frac{1}{8}$	18-3	18-4 $\frac{1}{8}$	18-6	18-7 $\frac{1}{8}$	18-9	18-10 $\frac{1}{8}$
13	19-6	19-7 $\frac{1}{8}$	19-9 $\frac{1}{4}$	19-10 $\frac{1}{8}$	20-0 $\frac{1}{4}$	20-2 $\frac{1}{8}$	20-3 $\frac{1}{4}$	20-5 $\frac{1}{8}$
14	21-0	21-1 $\frac{1}{8}$	21-3 $\frac{1}{4}$	21-5 $\frac{1}{8}$	21-7	21-8 $\frac{1}{8}$	21-10 $\frac{1}{4}$	22-0 $\frac{1}{8}$
15	22-6	22-7 $\frac{1}{8}$	22-9 $\frac{1}{4}$	22-11 $\frac{1}{8}$	23-1 $\frac{1}{4}$	23-3 $\frac{1}{8}$	23-5 $\frac{1}{4}$	23-7 $\frac{1}{8}$
16	24-0	24-2	24-4	24-6	24-8	24-10	25-0	25-2
17	25-6	25-8 $\frac{1}{8}$	25-10 $\frac{1}{4}$	26-0 $\frac{1}{8}$	26-2 $\frac{1}{4}$	26-4 $\frac{1}{8}$	26-6 $\frac{1}{4}$	26-8 $\frac{1}{8}$
18	27-0	27-2 $\frac{1}{8}$	27-4 $\frac{1}{4}$	27-6 $\frac{1}{8}$	27-9	27-11 $\frac{1}{8}$	28-1 $\frac{1}{4}$	28-3 $\frac{1}{8}$
19	28-6	28-8 $\frac{1}{8}$	28-10 $\frac{1}{4}$	29-1 $\frac{1}{8}$	29-3 $\frac{1}{4}$	29-5 $\frac{1}{8}$	29-8 $\frac{1}{4}$	29-10 $\frac{1}{8}$
20	30-0	30-2 $\frac{1}{8}$	30-5	30-7 $\frac{1}{8}$	30-10	31-0 $\frac{1}{8}$	31-3	31-5 $\frac{1}{8}$
No. Spaces	1' 7"	1' 7 $\frac{1}{8}$ "	1' 7 $\frac{1}{4}$ "	1' 7 $\frac{3}{8}$ "	1' 7 $\frac{1}{2}$ "	1' 7 $\frac{5}{8}$ "	1' 7 $\frac{3}{4}$ "	1' 7 $\frac{7}{8}$ "
2	3-2	3-2 $\frac{1}{8}$	3-2 $\frac{1}{4}$	3-2 $\frac{3}{8}$	3-3	3-3 $\frac{1}{8}$	3-3 $\frac{1}{4}$	3-3 $\frac{3}{8}$
3	4-9	4-9 $\frac{1}{8}$	4-9 $\frac{1}{4}$	4-10 $\frac{1}{8}$	4-10 $\frac{1}{4}$	4-10 $\frac{3}{8}$	4-11 $\frac{1}{8}$	4-11 $\frac{3}{8}$
4	6-4	6-4 $\frac{1}{8}$	6-5	6-5 $\frac{1}{8}$	6-6	6-6 $\frac{1}{8}$	6-7	6-7 $\frac{1}{8}$
5	7-11	7-11 $\frac{1}{8}$	8-0 $\frac{1}{4}$	8-0 $\frac{3}{8}$	8-1 $\frac{1}{4}$	8-2 $\frac{1}{8}$	8-2 $\frac{1}{4}$	8-3 $\frac{1}{8}$
6	9-6	9-6 $\frac{1}{8}$	9-7 $\frac{1}{4}$	9-8 $\frac{1}{8}$	9-9	9-9 $\frac{1}{8}$	9-10 $\frac{1}{4}$	9-11 $\frac{1}{8}$
7	11-1	11-1 $\frac{1}{8}$	11-2 $\frac{1}{4}$	11-3 $\frac{1}{8}$	11-4 $\frac{1}{4}$	11-5 $\frac{1}{8}$	11-6 $\frac{1}{4}$	11-7 $\frac{1}{8}$
8	12-8	12-9	12-10	12-11	13-0	13-1	13-2	13-3
9	14-3	14-4 $\frac{1}{8}$	14-5 $\frac{1}{4}$	14-6 $\frac{1}{8}$	14-7 $\frac{1}{4}$	14-8 $\frac{1}{8}$	14-9 $\frac{1}{4}$	14-10 $\frac{1}{8}$
10	15-10	15-11 $\frac{1}{8}$	16-0 $\frac{1}{4}$	16-1 $\frac{1}{8}$	16-3	16-4 $\frac{1}{8}$	16-5 $\frac{1}{4}$	16-6 $\frac{1}{8}$
11	17-5	17-6 $\frac{1}{8}$	17-7 $\frac{1}{4}$	17-9 $\frac{1}{8}$	17-10 $\frac{1}{4}$	17-11 $\frac{1}{8}$	18-1 $\frac{1}{4}$	18-2 $\frac{1}{8}$
12	19-0	19-1 $\frac{1}{8}$	19-3	19-4 $\frac{1}{8}$	19-6	19-7 $\frac{1}{8}$	19-9	19-10 $\frac{1}{8}$
13	20-7	20-8 $\frac{1}{8}$	20-10 $\frac{1}{4}$	20-11 $\frac{1}{8}$	21-1 $\frac{1}{4}$	21-3 $\frac{1}{8}$	21-4 $\frac{1}{4}$	21-6 $\frac{1}{8}$
14	22-2	22-3 $\frac{1}{8}$	22-5 $\frac{1}{4}$	22-7 $\frac{1}{8}$	22-9	22-10 $\frac{1}{8}$	23-0 $\frac{1}{4}$	23-2 $\frac{1}{8}$
15	23-9	23-10 $\frac{1}{8}$	24-0 $\frac{1}{4}$	24-2 $\frac{1}{8}$	24-4 $\frac{1}{4}$	24-6 $\frac{1}{8}$	24-8 $\frac{1}{4}$	24-10 $\frac{1}{8}$
16	25-4	25-6	25-8	25-10	26-0	26-2	26-4	26-6
17	26-11	27-1 $\frac{1}{8}$	27-3 $\frac{1}{4}$	27-5 $\frac{1}{8}$	27-7 $\frac{1}{4}$	27-9 $\frac{1}{8}$	27-11 $\frac{1}{4}$	28-1 $\frac{1}{8}$
18	28-6	28-8 $\frac{1}{8}$	28-10 $\frac{1}{4}$	29-0 $\frac{1}{8}$	29-3	29-5 $\frac{1}{8}$	29-7 $\frac{1}{4}$	29-9 $\frac{1}{8}$
19	30-1	30-3 $\frac{1}{8}$	30-5 $\frac{1}{4}$	30-8 $\frac{1}{8}$	30-10 $\frac{1}{4}$	31-0 $\frac{1}{8}$	31-3 $\frac{1}{4}$	31-5 $\frac{1}{8}$
20	31-8	31-10 $\frac{1}{8}$	32-1	32-3 $\frac{1}{8}$	32-6	32-8 $\frac{1}{8}$	32-11	33-1 $\frac{1}{8}$

MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	1' 8"	1' 8 $\frac{1}{2}$ "	1' 8 $\frac{1}{4}$ "	1' 8 $\frac{3}{8}$ "	1' 8 $\frac{1}{2}$ "	1' 8 $\frac{5}{8}$ "	1' 8 $\frac{3}{4}$ "	1' 8 $\frac{7}{8}$ "
2	3-4	3-4 $\frac{1}{2}$	3-4 $\frac{1}{4}$	3-4 $\frac{1}{2}$	3-5	3-5 $\frac{1}{2}$	3-5 $\frac{1}{4}$	3-5 $\frac{1}{2}$
3	5-0	5-0 $\frac{1}{2}$	5-0 $\frac{1}{4}$	5-1 $\frac{1}{4}$	5-1 $\frac{1}{2}$	5-1 $\frac{1}{4}$	5-2 $\frac{1}{4}$	5-2 $\frac{1}{2}$
4	6-8	6-8 $\frac{1}{2}$	6-9	6-9 $\frac{1}{2}$	6-10	6-10 $\frac{1}{2}$	6-11	6-11 $\frac{1}{2}$
5	8-4	8-4 $\frac{1}{2}$	8-5 $\frac{1}{4}$	8-5 $\frac{1}{2}$	8-6 $\frac{1}{2}$	8-7 $\frac{1}{2}$	8-7 $\frac{1}{4}$	8-8 $\frac{1}{2}$
6	10-0	10-0 $\frac{1}{2}$	10-1 $\frac{1}{4}$	10-2 $\frac{1}{4}$	10-3	10-3 $\frac{1}{2}$	10-4 $\frac{1}{2}$	10-5 $\frac{1}{2}$
7	11-8	11-8 $\frac{1}{2}$	11-9 $\frac{1}{4}$	11-10 $\frac{1}{4}$	11-11 $\frac{1}{4}$	12-0 $\frac{1}{2}$	12-1 $\frac{1}{4}$	12-2 $\frac{1}{2}$
8	13-4	13-5	13-6	13-7	13-8	13-9	13-10	13-11
9	15-0	15-1 $\frac{1}{2}$	15-2 $\frac{1}{4}$	15-3 $\frac{1}{4}$	15-4 $\frac{1}{2}$	15-5 $\frac{1}{2}$	15-6 $\frac{1}{2}$	15-7 $\frac{1}{2}$
10	16-8	16-9 $\frac{1}{2}$	16-10 $\frac{1}{4}$	16-11 $\frac{1}{4}$	17-1	17-2 $\frac{1}{2}$	17-3 $\frac{1}{2}$	17-4 $\frac{1}{2}$
11	18-4	18-5 $\frac{1}{2}$	18-6 $\frac{1}{4}$	18-8 $\frac{1}{4}$	18-9 $\frac{1}{4}$	18-10 $\frac{1}{4}$	19-0 $\frac{1}{2}$	19-1 $\frac{1}{2}$
12	20-0	20-1 $\frac{1}{2}$	20-3	20-4 $\frac{1}{2}$	20-6	20-7 $\frac{1}{2}$	20-9	20-10 $\frac{1}{2}$
13	21-8	21-9 $\frac{1}{2}$	21-11 $\frac{1}{4}$	22-0 $\frac{1}{2}$	22-2 $\frac{1}{4}$	22-4 $\frac{1}{2}$	22-5 $\frac{1}{2}$	22-7 $\frac{1}{2}$
14	23-4	23-5 $\frac{1}{2}$	23-7 $\frac{1}{4}$	23-9 $\frac{1}{4}$	23-11	24-0 $\frac{1}{2}$	24-2 $\frac{1}{4}$	24-4 $\frac{1}{2}$
15	25-0	25-1 $\frac{1}{2}$	25-3 $\frac{1}{4}$	25-5 $\frac{1}{2}$	25-7 $\frac{1}{2}$	25-9 $\frac{1}{2}$	25-11 $\frac{1}{2}$	26-1 $\frac{1}{2}$
16	26-8	26-10	27-0	27-2	27-4	27-6	27-8	27-10
17	28-4	28-6 $\frac{1}{2}$	28-8 $\frac{1}{4}$	28-10 $\frac{1}{4}$	29-0 $\frac{1}{2}$	29-2 $\frac{1}{2}$	29-4 $\frac{1}{2}$	29-6 $\frac{1}{2}$
18	30-0	30-2 $\frac{1}{2}$	30-4 $\frac{1}{4}$	30-6 $\frac{1}{2}$	30-9	30-11 $\frac{1}{4}$	31-1 $\frac{1}{2}$	31-3 $\frac{1}{2}$
19	31-8	31-10 $\frac{1}{2}$	32-0 $\frac{1}{4}$	32-3 $\frac{1}{4}$	32-5 $\frac{1}{2}$	32-7 $\frac{1}{2}$	32-10 $\frac{1}{2}$	33-0 $\frac{1}{2}$
20	33-4	33-6 $\frac{1}{2}$	33-9	33-11 $\frac{1}{2}$	34-2	34-4 $\frac{1}{2}$	34-7	34-9 $\frac{1}{2}$
No. Spaces	1' 9"	1' 9 $\frac{1}{8}$ "	1' 9 $\frac{1}{4}$ "	1' 9 $\frac{3}{8}$ "	1' 9 $\frac{1}{2}$ "	1' 9 $\frac{5}{8}$ "	1' 9 $\frac{3}{4}$ "	1' 9 $\frac{7}{8}$ "
2	3-6	3-6 $\frac{1}{4}$	3-6 $\frac{1}{2}$	3-6 $\frac{3}{4}$	3-7	3-7 $\frac{1}{4}$	3-7 $\frac{1}{2}$	3-7 $\frac{3}{4}$
3	5-3	5-3 $\frac{3}{8}$	5-3 $\frac{1}{2}$	5-4 $\frac{1}{4}$	5-4 $\frac{1}{2}$	5-4 $\frac{3}{4}$	5-5 $\frac{1}{4}$	5-5 $\frac{1}{2}$
4	7-0	7-0 $\frac{1}{2}$	7-1	7-1 $\frac{1}{4}$	7-2	7-2 $\frac{1}{2}$	7-3	7-3 $\frac{1}{2}$
5	8-9	8-9 $\frac{1}{4}$	8-10 $\frac{1}{4}$	8-10 $\frac{3}{4}$	8-11 $\frac{1}{4}$	9-0 $\frac{1}{4}$	9-0 $\frac{1}{2}$	9-1 $\frac{1}{4}$
6	10-6	10-6 $\frac{1}{2}$	10-7 $\frac{1}{4}$	10-8 $\frac{1}{4}$	10-9	10-9 $\frac{1}{4}$	10-10 $\frac{1}{4}$	10-11 $\frac{1}{4}$
7	12-3	12-3 $\frac{1}{4}$	12-4 $\frac{1}{4}$	12-5 $\frac{1}{4}$	12-6 $\frac{1}{4}$	12-7 $\frac{1}{4}$	12-8 $\frac{1}{4}$	12-9 $\frac{1}{4}$
8	14-0	14-1	14-2	14-3	14-4	14-5	14-6	14-7
9	15-9	15-10 $\frac{1}{4}$	15-11 $\frac{1}{4}$	16-0 $\frac{1}{4}$	16-1 $\frac{1}{4}$	16-2 $\frac{1}{4}$	16-3 $\frac{1}{4}$	16-4 $\frac{1}{4}$
10	17-6	17-7 $\frac{1}{4}$	17-8 $\frac{1}{4}$	17-9 $\frac{1}{4}$	17-11	18-0 $\frac{1}{4}$	18-1 $\frac{1}{4}$	18-2 $\frac{1}{4}$
11	19-3	19-4 $\frac{1}{4}$	19-5 $\frac{1}{4}$	19-7 $\frac{1}{4}$	19-8 $\frac{1}{4}$	19-9 $\frac{1}{4}$	19-11 $\frac{1}{4}$	20-0 $\frac{1}{4}$
12	21-0	21-1 $\frac{1}{4}$	21-3	21-4 $\frac{1}{4}$	21-6	21-7 $\frac{1}{4}$	21-9	21-10 $\frac{1}{4}$
13	22-9	22-10 $\frac{1}{4}$	23-0 $\frac{1}{4}$	23-1 $\frac{1}{4}$	23-3 $\frac{1}{4}$	23-5 $\frac{1}{4}$	23-6 $\frac{1}{4}$	23-8 $\frac{1}{4}$
14	24-6	24-7 $\frac{1}{4}$	24-9 $\frac{1}{4}$	24-11 $\frac{1}{4}$	25-1	25-2 $\frac{1}{4}$	25-4 $\frac{1}{4}$	25-6 $\frac{1}{4}$
15	26-3	26-4 $\frac{1}{4}$	26-6 $\frac{1}{4}$	26-8 $\frac{1}{4}$	26-10 $\frac{1}{4}$	27-0 $\frac{1}{4}$	27-2 $\frac{1}{4}$	27-4 $\frac{1}{4}$
16	28-0	28-2	28-4	28-6	28-8	28-10	29-0	29-2
17	29-9	29-11 $\frac{1}{4}$	30-1 $\frac{1}{4}$	30-3 $\frac{1}{4}$	30-5 $\frac{1}{4}$	30-7 $\frac{1}{4}$	30-9 $\frac{1}{4}$	30-11 $\frac{1}{4}$
18	31-6	31-8 $\frac{1}{4}$	31-10 $\frac{1}{4}$	32-0 $\frac{1}{4}$	32-3	32-5 $\frac{1}{4}$	32-7 $\frac{1}{4}$	32-9 $\frac{1}{4}$
19	33-3	33-5 $\frac{1}{4}$	33-7 $\frac{1}{4}$	33-10 $\frac{1}{4}$	34-0 $\frac{1}{4}$	34-2 $\frac{1}{4}$	34-5 $\frac{1}{4}$	34-7 $\frac{1}{4}$
20	35-0	35-2 $\frac{1}{4}$	35-5	35-7 $\frac{1}{4}$	35-10	36-0 $\frac{1}{4}$	36-3	36-5 $\frac{1}{4}$

MULTIPLICATION TABLE FOR SPACING OF LATTICE BARS

No. Spaces	1' 10"	1' 10 $\frac{1}{8}$ "	1' 10 $\frac{1}{4}$ "	1' 10 $\frac{3}{8}$ "	1' 10 $\frac{1}{2}$ "	1' 10 $\frac{5}{8}$ "	1' 10 $\frac{3}{4}$ "	1' 10 $\frac{7}{8}$ "
2	3-8	3-8 $\frac{1}{8}$	3-8 $\frac{1}{4}$	3-8 $\frac{3}{8}$	3-9	3-9 $\frac{1}{8}$	3-9 $\frac{1}{4}$	3-9 $\frac{3}{8}$
3	5-6	5-6 $\frac{1}{8}$	5-6 $\frac{1}{4}$	5-7 $\frac{1}{8}$	5-7 $\frac{1}{4}$	5-7 $\frac{3}{8}$	5-8 $\frac{1}{8}$	5-8 $\frac{1}{4}$
4	7-4	7-4 $\frac{1}{8}$	7-5	7-5 $\frac{1}{8}$	7-6	7-6 $\frac{1}{8}$	7-7	7-7 $\frac{1}{8}$
5	9-2	9-2 $\frac{1}{8}$	9-3 $\frac{1}{4}$	9-3 $\frac{3}{8}$	9-4 $\frac{1}{4}$	9-5 $\frac{1}{8}$	9-5 $\frac{1}{4}$	9-6 $\frac{1}{8}$
6	11-0	11-0 $\frac{1}{8}$	11-1 $\frac{1}{4}$	11-2 $\frac{1}{8}$	11-3	11-3 $\frac{1}{8}$	11-4 $\frac{1}{4}$	11-5 $\frac{1}{8}$
7	12-10	12-10 $\frac{1}{8}$	12-11 $\frac{1}{4}$	13-0 $\frac{1}{8}$	13-1 $\frac{1}{4}$	13-2 $\frac{1}{8}$	13-3 $\frac{1}{4}$	13-4 $\frac{1}{8}$
8	14-8	14-9	14-10	14-11	15-0	15-1	15-2	15-3
9	16-6	16-7 $\frac{1}{8}$	16-8 $\frac{1}{4}$	16-9 $\frac{1}{8}$	16-10 $\frac{1}{4}$	16-11 $\frac{1}{8}$	17-0 $\frac{1}{4}$	17-1 $\frac{1}{8}$
10	18-4	18-5 $\frac{1}{8}$	18-6 $\frac{1}{4}$	18-7 $\frac{1}{8}$	18-9	18-10 $\frac{1}{8}$	18-11 $\frac{1}{4}$	19-0 $\frac{1}{8}$
11	20-2	20-3 $\frac{1}{8}$	20-4 $\frac{1}{4}$	20-6 $\frac{1}{8}$	20-7 $\frac{1}{4}$	20-8 $\frac{1}{8}$	20-10 $\frac{1}{4}$	20-11 $\frac{1}{8}$
12	22-0	22-1 $\frac{1}{8}$	22-3	22-4 $\frac{1}{8}$	22-6	22-7 $\frac{1}{8}$	22-9	22-10 $\frac{1}{8}$
13	23-10	23-11 $\frac{1}{8}$	24-1 $\frac{1}{4}$	24-2 $\frac{1}{8}$	24-4 $\frac{1}{4}$	24-6 $\frac{1}{8}$	24-7 $\frac{1}{4}$	24-9 $\frac{1}{8}$
14	25-8	25-9 $\frac{1}{8}$	25-11 $\frac{1}{4}$	26-1 $\frac{1}{8}$	26-3	26-4 $\frac{1}{8}$	26-6 $\frac{1}{4}$	26-8 $\frac{1}{8}$
15	27-6	27-7 $\frac{1}{8}$	27-9 $\frac{1}{4}$	27-11 $\frac{1}{8}$	28-1 $\frac{1}{4}$	28-3 $\frac{1}{8}$	28-5 $\frac{1}{4}$	28-7 $\frac{1}{8}$
16	29-4	29-6	29-8	29-10	30-0	30-2	30-4	30-6
17	31-2	31-4 $\frac{1}{8}$	31-6 $\frac{1}{4}$	31-8 $\frac{1}{8}$	31-10 $\frac{1}{4}$	32-0 $\frac{1}{8}$	32-2 $\frac{1}{4}$	32-4 $\frac{1}{8}$
18	33-0	33-2 $\frac{1}{8}$	33-4 $\frac{1}{4}$	33-6 $\frac{1}{8}$	33-9	33-11 $\frac{1}{8}$	34-1 $\frac{1}{4}$	34-3 $\frac{1}{8}$
19	34-10	35-0 $\frac{1}{8}$	35-2 $\frac{1}{4}$	35-5 $\frac{1}{8}$	35-7 $\frac{1}{4}$	35-9 $\frac{1}{8}$	36-0 $\frac{1}{4}$	36-2 $\frac{1}{8}$
20	36-8	36-10 $\frac{1}{8}$	37-1	37-3 $\frac{1}{8}$	37-6	37-8 $\frac{1}{8}$	37-11	38-1 $\frac{1}{8}$
No. Spaces	1' 11"	1' 11 $\frac{1}{8}$ "	1' 11 $\frac{1}{4}$ "	1' 11 $\frac{3}{8}$ "	1' 11 $\frac{1}{2}$ "	1' 11 $\frac{5}{8}$ "	1' 11 $\frac{3}{4}$ "	1' 11 $\frac{7}{8}$ "
2	3-10	3-10 $\frac{1}{8}$	3-10 $\frac{1}{4}$	3-10 $\frac{3}{8}$	3-11	3-11 $\frac{1}{8}$	3-11 $\frac{1}{4}$	3-11 $\frac{3}{8}$
3	5-9	5-9 $\frac{1}{8}$	5-9 $\frac{1}{4}$	5-10 $\frac{1}{8}$	5-10 $\frac{1}{4}$	5-10 $\frac{3}{8}$	5-11 $\frac{1}{8}$	5-11 $\frac{1}{4}$
4	7-8	7-8 $\frac{1}{8}$	7-9	7-9 $\frac{1}{8}$	7-10	7-10 $\frac{1}{8}$	7-11	7-11 $\frac{1}{8}$
5	9-7	9-7 $\frac{1}{8}$	9-8 $\frac{1}{4}$	9-8 $\frac{3}{8}$	9-9 $\frac{1}{4}$	9-10 $\frac{1}{8}$	9-10 $\frac{1}{4}$	9-11 $\frac{1}{8}$
6	11-6	11-6 $\frac{1}{8}$	11-7 $\frac{1}{4}$	11-8 $\frac{1}{8}$	11-9	11-9 $\frac{1}{8}$	11-10 $\frac{1}{4}$	11-11 $\frac{1}{8}$
7	13-5	13-5 $\frac{1}{8}$	13-6 $\frac{1}{4}$	13-7 $\frac{1}{8}$	13-8 $\frac{1}{4}$	13-9 $\frac{1}{8}$	13-10 $\frac{1}{4}$	13-11 $\frac{1}{8}$
8	15-4	15-5	15-6	15-7	15-8	15-9	15-10	15-11
9	17-3	17-4 $\frac{1}{8}$	17-5 $\frac{1}{4}$	17-6 $\frac{1}{8}$	17-7 $\frac{1}{4}$	17-8 $\frac{1}{8}$	17-9 $\frac{1}{4}$	17-10 $\frac{1}{8}$
10	19-2	19-3 $\frac{1}{8}$	19-4 $\frac{1}{4}$	19-5 $\frac{1}{8}$	19-7	19-8 $\frac{1}{8}$	19-9 $\frac{1}{4}$	19-10 $\frac{1}{8}$
11	21-1	21-2 $\frac{1}{8}$	21-3 $\frac{1}{4}$	21-5 $\frac{1}{8}$	21-6 $\frac{1}{4}$	21-7 $\frac{1}{8}$	21-9 $\frac{1}{4}$	21-10 $\frac{1}{8}$
12	23-0	23-1 $\frac{1}{8}$	23-3	23-4 $\frac{1}{8}$	23-6	23-7 $\frac{1}{8}$	23-9	23-10 $\frac{1}{8}$
13	24-11	25-0 $\frac{1}{8}$	25-2 $\frac{1}{4}$	25-3 $\frac{1}{8}$	25-5 $\frac{1}{4}$	25-7 $\frac{1}{8}$	25-8 $\frac{1}{4}$	25-10 $\frac{1}{8}$
14	26-10	26-11 $\frac{1}{8}$	27-1 $\frac{1}{4}$	27-3 $\frac{1}{8}$	27-5	27-6 $\frac{1}{8}$	27-8 $\frac{1}{4}$	27-10 $\frac{1}{8}$
15	28-9	28-10 $\frac{1}{8}$	29-0 $\frac{1}{4}$	29-2 $\frac{1}{8}$	29-4 $\frac{1}{4}$	29-6 $\frac{1}{8}$	29-8 $\frac{1}{4}$	29-10 $\frac{1}{8}$
16	30-8	30-10	31-0	31-2	31-4	31-6	31-8	31-10
17	32-7	32-9 $\frac{1}{8}$	32-11 $\frac{1}{4}$	33-1 $\frac{1}{8}$	33-3 $\frac{1}{4}$	33-5 $\frac{1}{8}$	33-7 $\frac{1}{4}$	33-9 $\frac{1}{8}$
18	34-6	34-8 $\frac{1}{8}$	34-10 $\frac{1}{4}$	35-0 $\frac{1}{8}$	35-3	35-5 $\frac{1}{8}$	35-7 $\frac{1}{4}$	35-9 $\frac{1}{8}$
19	36-5	36-7 $\frac{1}{8}$	36-9 $\frac{1}{4}$	37-0 $\frac{1}{8}$	37-2 $\frac{1}{4}$	37-4 $\frac{1}{8}$	37-7 $\frac{1}{4}$	37-9 $\frac{1}{8}$
20	38-4	38-6 $\frac{1}{8}$	38-9	38-11 $\frac{1}{8}$	39-2	39-4 $\frac{1}{8}$	39-7	39-9 $\frac{1}{8}$



## EXPLANATIONS AND EXAMPLES.

Although it is assumed that the users of this book of tables are familiar with the principles of logarithms and trigonometry, a few typical examples are given, mainly with a view of showing some of the more important uses of the special tables introduced in this work, namely, the Parallel Tables of Logarithms and Squares and the Table of Angles and Functions Corresponding to Given Bevels, which, for the sake of brevity, will here be referred to simply as the Parallel Tables and Table of Bevels, respectively, as by the use of these tables the solutions of many standard problems in trigonometry are greatly simplified. This is especially true with regard to solutions of triangles when computing dimensions of structural frames. In problems of this class, unlike those relating to surveying, angles measured in degrees, minutes, and seconds are usually not given, nor are they required, because of the fact that in structural work the direction of a member with reference to another is usually not given by the angle that these members form with each other, but by the so-called *bevel* or *slope*, which is the *natural tangent of the angle, expressed in inches and fractions of an inch and referred to 1 foot or 12 inches as a unit*. For example, the angle that the side  $AB$ , Fig. 1, makes with  $AC$  is indicated by an elementary triangle in which the base is 12" and the altitude  $s$  is the so-called slope, or bevel, the hypotenuse coinciding with the line  $AB$ . It is true that computations of this nature often involve the solution of a net of triangles, in which the angles of one triangle might be needed in order to solve the next triangle; but, ordinarily, for further calculations it is not the angles themselves that are required but their trigonometric functions. It is therefore primarily with functions of angles, especially with the logarithms of these functions, that we have to deal here, rather than with the angles themselves. This is one of the reasons why the tables referred to are particularly suitable for this class of computations, the combination of the logarithms and the squares making it possible to determine with sufficient accuracy the functions of the angles involved without first computing the angles themselves, as will be shown in the following examples.

In performing this class of computations, which are often very complicated, it is also important to be in a position to check each step of the work in order to avoid the carrying over of errors in the further calculations. The combination of the elements of the Parallel Tables, as well as those of the Table of Bevels, affords effective means for this purpose. It might also be well to mention that the direct work, as well as the checking, is greatly facilitated by the arrangement of the Parallel Tables, in which the logarithms and the squares are placed side by side, enabling the taking from the table of both values at the same time when the number is given, and to



read the square from the logarithm and vice versa, without first determining the number, when the latter is not known.

**PROBLEM I.**—In the right triangle  $ABC$ , Fig. 1, the sides  $a$  and  $b$  are known. Find  $c$ ,  $s$ , and the logarithms of the functions of the angle  $A$ . This problem is of frequent occurrence in structural work. The two given sides are usually the main dimensions of a frame, as in a roof truss the half span and rise, and the logarithmic functions are required in order to determine the dimensions of the diagonals of the frame.

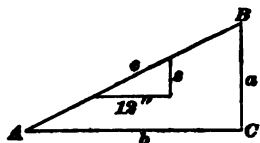


FIG. 1.

**SOLUTION.**—Take out from the Parallel Tables the logarithms and squares of  $a$  and  $b$ . Subtract  $\log b$  from  $\log a$ ; the difference is  $\log \tan A = \log s$ . Add  $b^2$  to  $a^2$ ; the sum is  $c^2$ . Referring again to the Parallel Tables, take out  $c$  and  $\log c$  corresponding to the nearest  $c^2$ . Similarly, take out  $s$  and  $s^2$  corresponding to the nearest  $\log s$ . Then,  $\log \sec A = \log c - \log b$ . The logarithms of the other functions may then be easily computed from those of the  $\tan A$  and  $\sec A$ .

Thus,  $\log \sin A = \log \tan A - \log \sec A$ ;  
 $\log \csc A = \log \sec A - \log \tan A$ ;  
 $\log \cos A = -\log \sec A$ ;  
 and  $\log \cot A = -\log \tan A$ .

It must be noted here, that since  $\log c$  has been obtained from the table as the nearest value corresponding to  $c^2$ , the functions derived from it will slightly deviate from their exact values. These deviations, however, will have no appreciable effect on the further calculations involving these functions as long as the new dimensions to be computed are not larger than  $c$ . With the conditions as indicated in this problem, in which  $a$  and  $b$  are assumed to be the main dimensions of a frame, the quantities to be derived will be smaller than  $c$ ; the effect of the slight errors in the functions may therefore be disregarded. If desired, however, the slight errors may be entirely eliminated by interpolating for the correct value of  $\log c$  from  $c^2$ . This should be done in cases when the dimensions to be calculated are larger than those from which the function has been derived.

For the purpose of checking the computed values, note that  $\sec^2 A = 1 + \tan^2 A = 1 + s^2$ . The numerical value of  $\sec A$  can therefore be obtained from the table of squares. On the other hand, the same value of  $\sec A$  may also be determined from  $\log \sec A$ . It is evident that both values must agree if the computations were made correctly.

As an illustration, let  $a = 15' 7\frac{1}{2}''$  and  $b = 35' 9\frac{1}{2}''$ . Proceeding by the method just explained, we obtain:

$$\begin{array}{ll} \log a = 1.19382 & a^2 = 244.1406 \\ \log b = 1.55403 & b^2 = 1282.5352 \\ \log \tan A = \log s = 9.63979 & c^2 = 1526.6758 \end{array}$$

Hence,  $s = 5\frac{1}{2}$  and  $s^2 = .1914$ ; also,  $c = 39' 0\frac{7}{8}''$  and  $\log c = 1.59188$ ; therefore,  $\log \sec A = \log c - \log b = 1.59188 - 1.55403 = 0.03785$ .

The logarithm of any other function may now be calculated from those of the tangent and the secant. For instance,  $\log \sin A = \log \tan A - \log \sec A = 9.63979 - 0.03785 = 9.60194$ .

For the purpose of checking, note that  $\sec^2 A = 1.1914$  and that  $\log \sec A$  has already been found as 0.03785. The numerical value of  $\sec A$ , in feet and inches, is then determined both by its logarithm and by its square, as  $1' 1\frac{1}{4}"$ . The calculations may therefore be assumed as correct.

All values involved in this problem are tabulated in the accompanying table. A similar tabulation is recommended in all problems of this kind, as its use, especially in complicated computations, results in considerable saving of time and enables the rapid checking of the computed values. The

	<i>N</i>	<i>L</i>	<i>S</i>
<i>a</i>	15—7½	1.19382	244.1406
<i>b</i>	35—9½	1.55403	1282.5352
<i>c</i>	39—0½	1.59188	1526.6758
$\tan A = s$	5½	9.63979	.1914
$\sec A$	1—1½	0.03785	1.1914
$\sin A$		9.60194	

The letters *N*, *L*, and *S* indicate, respectively, the numerical value, the logarithm, and the square of the member given in the extreme left-hand column. As these values are placed in the table side by side, the entire set is at once taken from the table when one of them is given. The table is to be filled out gradually as the work is progressing. In the following examples, except in problem VII, these tabulations are omitted on account of lack of space.

**PROBLEM II.**—In the right triangle *ABC*, Fig. 1, the sides *b* and *c* are known. Find *a* and *s*, and the logarithmic functions of the angle *A*.

**SOLUTION.**—This problem is solved in much the same manner as the preceding one, the relation  $a^2 = c^2 - b^2$  being used for finding *a* and  $\log a$ . The bevel *s*, however, is here preferably determined from the Table of Bevels as the nearest one corresponding to  $\log \sec A = \log c - \log b$ . After  $\log \tan A$  has been computed, *s* may again be determined as a check on the obtained value of the bevel, as well as on the values of *a* and  $\log \sec A$ .

As an illustration, let  $b = 36' 11\frac{1}{4}"$  and  $c = 39' 3\frac{1}{4}"$ . Reference to the Parallel Tables shows that

$$\begin{aligned} \log c &= 1.59407 & c^2 &= 1542.1984 \\ \log b &= 1.56771 & b^2 &= 1365.9184 \\ \log \sec A &= 0.02636 & a^2 &= 176.2800 \end{aligned}$$

According to the Table of Bevels,  $s = 4\frac{1}{4}"$ , and according to the Parallel Tables,  $a = 13' 3\frac{1}{4}"$  and  $\log a = 1.12307$ . Hence,  $\log \tan A = 1.12307 - 1.56771 = 9.55536$ . From this, the bevel is again determined, from the Parallel Tables, as  $4\frac{1}{4}"$ , which shows that the calculations are correct.

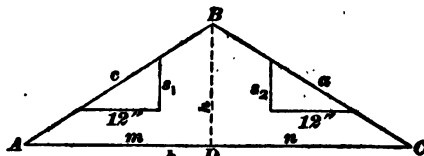


FIG. 2.

**PROBLEM III.**—In the triangle *ABC*, Fig. 2, the sides *a*, *b*,

and  $c$  are known. Find  $m=AD$  and  $n=DC$ ,  $BD$  being the altitude of the triangle.

**SOLUTION.**—From the triangle  $ABD$ ,  $m=c \cos A$  (1) and  $n=a \cos C$  (2), and from the triangle  $ABC$ ,  $a^2=b^2+c^2-2bc \cos A$  and  $c^2=a^2+b^2-2ab \cos C$ . Solving for  $\cos A$  and  $\cos C$ ,  $\cos A = \frac{b^2+c^2-a^2}{2bc}$  (3) and  $\cos C = \frac{a^2+b^2-c^2}{2ab}$  (4). Substituting these values of  $\cos A$  and  $\cos C$  in the expression for  $m$  and  $n$ , respectively, equations 1 and 2 become  $m = \frac{b^2+c^2-a^2}{2b}$  and  $n = \frac{a^2+b^2-c^2}{2b}$ . By the table of squares, find  $c^2+b^2-a^2=w^2$  and  $a^2+b^2-c^2=v^2$ . Then,  $m = \frac{w^2}{2b}$  and  $n = \frac{v^2}{2b}$ .

Hence,  $\log m = \log w^2 - \log (2b)$   
and  $\log n = \log v^2 - \log (2b)$

$\log b$  may be taken from the Parallel Tables at the same time that  $b^2$  is found. The values of  $w^2$  and  $v^2$  are expressed in decimals; their logarithms may be taken from the Table of Common Logarithms of Numbers, or  $\log w$  and  $\log v$  may be determined as the values corresponding to  $w^2$  and  $v^2$  in the Parallel Tables and then multiplied by 2. Time may be saved by using the second method, but the first method is more accurate.

As a check, the sum of  $m$  and  $n$  must be equal to  $b$ .

Let, for example,  $a=9' 7\frac{1}{2}''$ ,  $b=15' 6\frac{1}{2}''$ , and  $c=8' 5\frac{1}{2}''$ . Then,  $w^2=c^2+b^2-a^2=71.5434+242.1914-92.8413=220.8935$  and  $v^2=a^2+b^2-c^2=92.8413+242.1914-71.5434=263.4893$ ;  $\log w^2=2.34418$ ;  $\log v^2=2.42076$  and  $\log (2b)=1.19208+0.30103=1.49311$ ;  $\log m=2.34418-1.49311=0.85107=\log 7' 1\frac{1}{2}''$  and  $\log n=2.42076-1.49311=0.92765=\log 8' 5\frac{1}{2}''$ . As a check,  $m+n=7' 1\frac{1}{2}''+8' 5\frac{1}{2}''=15' 6\frac{1}{2}''$ .

**PROBLEM IV.**—In the triangle  $ABC$ , Fig. 2, the three sides  $a$ ,  $b$ , and  $c$  are known. Find the bevels  $s_1$  and  $s_2$ .

**SOLUTION.**—*First Method.*—Compute  $m$  and  $n$  as in problem III. The bevels can then be determined from the triangles  $ABD$  and  $BCD$ , as explained in Problem II.

*Second Method.*—Using the formulas  $\cos A = \frac{b^2+c^2-a^2}{2bc}$  and  $\cos C = \frac{a^2+b^2-c^2}{2ab}$ , determine  $\log \cos A$  and  $\log \cos C$  and take the corresponding bevels from the Table of Bevels.

*Third Method.*—Calculate the angles  $A$  and  $C$  by the formulas  $\sin \frac{A}{2} = \sqrt{\frac{(p-c)(p-b)}{bc}}$  and  $\sin \frac{C}{2} = \sqrt{\frac{(p-a)(p-b)}{ab}}$ , in which  $p = \frac{a+b+c}{2}$ . Then, take the bevels corresponding to  $A$  and  $C$  from the Table of Bevels.

In the following, the second and third methods are illustrated by a numerical example, assuming for  $a$ ,  $b$ , and  $c$  the same values as in Problem III.

In applying the second method,

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = \frac{w^2}{2bc} \text{ and } \cos C = \frac{a^2 + b^2 - c^2}{2ab} = \frac{v^2}{2ab}.$$

Hence,  $\log \cos A = \log w^2 - \log (2bc) = 9.92379$   
and  $\log \cos C = \log v^2 - \log (2ba) = 9.94378.$

Referring to the Table of Bevels, it is found that  $s_1 = 7\frac{1}{4}''$  and  $s_2 = 6\frac{1}{4}''.$

In applying the third method,  $p = 16' 9\frac{1}{4}''$ ;  $p-a = 7' 2\frac{1}{4}''$ ;  $p-b = 1' 3\frac{1}{4}''$ ; and  $p-c = 8' 4\frac{1}{4}''.$

Therefore,  $\sin \frac{A}{2} = \sqrt{\frac{1' 3\frac{1}{4}'' \times 8' 4\frac{1}{4}''}{15' 6\frac{1}{4}'' \times 8' 5\frac{1}{4}''}}$

and  $\sin \frac{C}{2} = \sqrt{\frac{7' 2\frac{1}{4}'' \times 1' 3\frac{1}{4}''}{15' 6\frac{1}{4}'' \times 9' 7\frac{1}{4}''}};$

whence,  $A = 32^\circ 57' 34''$  and  $C = 28^\circ 31' 42''.$

Referring to the Table of Bevels, it is found that  $s_1 = 7\frac{1}{4}''$  and  $s_2 = 6\frac{1}{4}''$ , as before.

**PROBLEM V.**—In the triangle  $ABC$ , Fig. 2, the sides  $b$  and  $c$  are given and the logarithmic functions of the angle  $A$  are known. Find the side  $a$  and the bevel  $s_1$ .

**SOLUTION.**—*First Method.*—Solve the triangle  $ABD$  for the values of  $h$  and  $m$  by the formulas  $h = c \sin A$  and  $m = c \cos A$ . Then, since  $n = b - m$ , the triangle  $BDC$  may be solved and the values of  $a$  and  $s_2$  obtained, as explained in connection with Problem I.

*Second Method.*—Determine  $a$  and  $\log a$  by the Parallel Tables from the relation  $a^2 = b^2 + c^2 - 2bc \cos A$ . Then, employing the formula  $\sin C = \frac{c}{a} \sin A$ , compute  $\log \sin C = \log c + \log \sin A - \log a$  and take the corresponding bevel from the Table of Bevels.

Let, for example,  $c = 10' 7\frac{1}{4}''$  and  $b = 18' 5''$ , and let the bevel  $s_1 = 9\frac{1}{4}''$ ;  $\log \sin A$  and  $\log \cos A$  may therefore be obtained from the Table of Bevels, as  $\log \sin A = 9.78569$  and  $\log \cos A = 9.89873$ . Then, in using the first method, it is found by reference to the Parallel Tables that  $\log c = 1.02633$  and  $c^2 = 112.8906$ . Therefore,  $\log h = 1.02633 + 9.78569 = 0.81202$ , and  $\log m = 1.02633 + 9.89873 = 0.92506$ . Therefore,  $h = 6' 5\frac{1}{4}''$  and  $h^2 = 42.0809$ ,  $m = 8' 4\frac{1}{4}''$ , and  $m^2 = 70.7964$ .

As a check,  $h^2 + m^2 = c^2 = 42.0809 + 70.7964 = 112.8773$ , which gives for  $c$  the value of  $10' 7\frac{1}{4}''$ . To solve, now, the triangle  $DBC$ ,  $n = 18' 5'' - 8' 4\frac{1}{4}'' = 10' 0\frac{1}{4}''$ . Then,  $\log n = 1.00011$  and  $n^2 = 100.0521$ . Proceeding now as in Problem I, it is found that  $s_2 = 7\frac{1}{4}''$  and  $a = 11' 11\frac{1}{4}''.$

To apply the second method,

$$\log b = 1.26521 \text{ and } b^2 = 339.1736;$$

$$\log c = 1.02633 \text{ and } c^2 = 112.8906;$$

$$\log (2bc \cos A) = 2.49130 = \log 309.957.$$

Hence,  $a^2 = 339.1736 + 112.8906 - 309.957 = 142.1072 = (11' 11\frac{1}{4}')^2$  and  $\log a = 1.07634$ . To determine the bevel, the formula  $\sin C =$





**PROBLEM IX.**—In Fig. 6 are given  $w_1$ ,  $w_2$ , and  $s$ . To find  $AB$ ,  $AD$ ,  $DC$ ,  $EF$ , and  $AE$ .

**SOLUTION.**—In this problem, as well as in the next one, the Table of Bevels is most conveniently employed. The following formulas may be used:  $AB = w_1 \sec a$ ;  $AD = w_2 \csc a$ ;  $DC = w_1 \tan a - w_2 \cot a$ ;  $EF = \frac{DC \times w_1}{w_1 + w_2}$ ; and  $AE = w_1 \tan a - EF$ .

Let, for example,  $w_1 = 5''$ ;  $w_2 = 3''$ ; and  $s = 10\frac{1}{4}''$ . Then, from the Table of Bevels,  $\sec a = 1.346$ ,  $\csc a = 1.494$ ,  $\tan a = .901$ , and  $\cot a = 1.110$ . Therefore,  $AB = 5'' \times 1.346 = 6\frac{3}{4}''$ ;  $AD = 3'' \times 1.494 = 4\frac{1}{4}''$ ;  $DC = 5'' \times .901 - 3'' \times 1.110 = 1.175'' = 1\frac{1}{4}''$ ;  $EF = \frac{1.175'' \times 5}{8} = .734'' = \frac{1}{4}''$ ; and  $AE = 5'' \times .901 - .734'' = 3\frac{1}{4}''$ .

When  $w_1 = w_2 = w$ ; then,  $DC = w (\tan a - \cot a) = 2w \cot (2a)$ ,  $EF = \frac{1}{2} DC$ , and  $AE = \frac{w}{2} (\tan a + \cot a) = w \csc (2a)$ .

**PROBLEM X.**—In Fig. 7 are given  $s$ ,  $a$ , and  $b$ ; and  $AB$  and  $AC$  are required.

**SOLUTION.**—There are three cases, as shown in (a), (b), and (c). The formulas to be applied in each case are given under the illustrations.

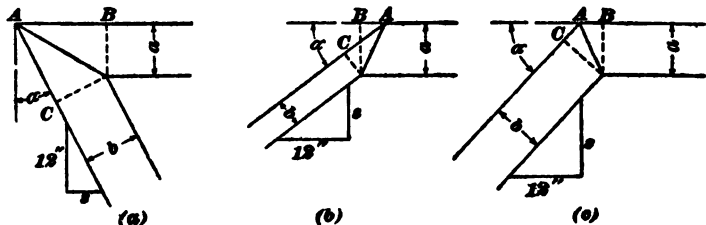


FIG. 7.

$$AC = (b + a \csc a) \tan a$$

$$AB = (a + b \csc a) \tan a$$

$$AC = (a \sec a - b) \cot a$$

$$AB = (a - b \sec a) \cot a$$

$$AB = (b \sec a - a) \cot a$$

$$AC = (a \sec a - b) \cot a$$

Let, for example, in Fig. 7 (c),  $a = 20''$ ,  $b = 18''$ , and  $s = 11\frac{1}{4}''$ . Referring to the Table of Bevels, it is found that  $\sec a = 1.38506$ . Therefore,  $b \sec a - a = 18 \times 1.38506 - 20 = 4.9311$  and  $a \sec a - b = 20 \times 1.38506 - 18 = 9.7012$ . Hence,  $AB = 4.9311 \times \cot a$  and  $AC = 9.7012 \times \cot a$ ; whence,

$$\log AB = \log 4.9311 + \log \cot a$$

and

$$\log AC = \log 9.7012 + \log \cot a$$

According to the Table of Bevels,  $\log \cot a = 0.01848$ ; hence,

$$\log AB = 0.69295 + 0.01848 = 0.71143 = \log 5.1455$$

and

$$\log AC = 0.98683 + 0.01848 = 1.00531 = \log 10.125$$

Therefore,  $A B=5\frac{1}{2}''$  and  $A C=10\frac{1}{2}''$ .

These results were obtained by means of the Table of Common Logarithms and the Table of Decimal Equivalents. It is, however, simpler to subtract  $\log 12$  from the obtained  $\log A B$  and  $\log A C$ , and obtain the results in inches directly from the Parallel Tables. Thus,

$$\log A B=0.71143-1.07918=9.63225=\log 5\frac{1}{2}''$$

$$\log A C=1.00531-1.07918=9.92613=\log 10\frac{1}{2}''$$







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# Five-Decimal Logarithmic-Trigonometric Tables

## Natural Trigonometric Functions

Including Secant and Cosecant

Squares, Cubes, Square Roots, Etc.  
Areas and Circumferences  
of Circles

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BY

C. K. SMOLEY

*Principal, School of Civil Engineering, International Correspondence Schools  
Author of Parallel Tables of Logarithms and Squares  
of Parallel Tables of Sines and Cosines, etc.*

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THIRD EDITION, REVISED AND ENLARGED

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C. K. SMOLEY & SONS, PUBLISHERS  
SCRANTON, PA.

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7, STATIONER'S HALL COURT, LONDON, E. C.  
1920

## PREFACE TO FIRST EDITION.

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This set of logarithmic-trigonometric tables was originally designed as a counterpart to the author's "Parallel Tables of Logarithms and Squares." The new arrangement of the tables of log. functions, the typography and convenient size of the page, justify, we believe, its publication as a separate book.

The classic works of Gauss & Albrecht were taken as the basis for this work and the proofs were checked both before and after electrotyping.

CONSTANTINE SMOLEY.

673 N Claremont Ave.,  
CHICAGO, ILL., January, 1908.

**TABLE**  
**OF**  
**COMMON LOGARITHMS**  
**OF NUMBERS**  
**FROM 1 TO 10000**

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
0	—	20	1. 30 103	40	1. 60 206	60	1. 77 815	80	1. 90 309
1	0. 00 000	21	1. 32 222	41	1. 61 278	61	1. 78 533	81	1. 90 849
2	0. 30 103	22	1. 34 242	42	1. 62 325	62	1. 79 239	82	1. 91 381
3	0. 47 712	23	1. 36 173	43	1. 63 347	63	1. 79 934	83	1. 91 908
4	0. 60 206	24	1. 38 021	44	1. 64 345	64	1. 80 618	84	1. 92 428
5	0. 69 897	25	1. 39 794	45	1. 65 321	65	1. 81 291	85	1. 92 942
6	0. 77 815	26	1. 41 497	46	1. 66 276	66	1. 81 954	86	1. 93 450
7	0. 84 510	27	1. 43 136	47	1. 67 210	67	1. 82 607	87	1. 93 952
8	0. 90 309	28	1. 44 716	48	1. 68 124	68	1. 83 251	88	1. 94 448
9	0. 95 424	29	1. 46 240	49	1. 69 020	69	1. 83 885	89	1. 94 939
10	1. 00 000	30	1. 47 712	50	1. 69 897	70	1. 84 510	90	1. 95 424
11	1. 04 139	31	1. 49 136	51	1. 70 757	71	1. 85 126	91	1. 95 904
12	1. 07 918	32	1. 50 515	52	1. 71 600	72	1. 85 733	92	1. 96 379
13	1. 11 394	33	1. 51 851	53	1. 72 428	73	1. 86 332	93	1. 96 848
14	1. 14 613	34	1. 53 148	54	1. 73 239	74	1. 86 923	94	1. 97 313
15	1. 17 609	35	1. 54 407	55	1. 74 036	75	1. 87 506	95	1. 97 772
16	1. 20 412	36	1. 55 630	56	1. 74 819	76	1. 88 081	96	1. 98 227
17	1. 23 045	37	1. 56 820	57	1. 75 587	77	1. 88 649	97	1. 98 677
18	1. 25 527	38	1. 57 978	58	1. 76 343	78	1. 89 209	98	1. 99 123
19	1. 27 875	39	1. 59 106	59	1. 77 085	79	1. 89 763	99	1. 99 564
20	1. 30 103	40	1. 60 206	60	1. 77 815	80	1. 90 309	100	2. 00 000

N.	L.	0	1	2	3	4	5	6	7	8	9	PP.
100	06	000	043	087	130	173	217	260	303	346	389	
101		432	475	518	561	604	647	689	732	775	817	44 43 42
102		860	903	945	988	*030	*072	*115	*157	*199	*242	1 4.4 4.3 4.2
103	01	284	326	368	410	452	494	536	578	620	662	2 8.8 8.6 8.4
104		703	745	787	828	870	912	953	995	*036	*078	3 13.2 12.9 12.6
105	02	119	160	202	243	284	325	366	407	449	490	4 17.6 17.2 16.8
106		531	572	612	653	694	735	776	816	857	898	5 22.0 21.5 21.0
107		938	979	*019	*060	*100	*141	*181	*222	*262	*302	6 26.4 25.8 25.2
108	03	342	383	423	463	503	543	583	623	663	703	7 30.8 30.1 29.4
109		743	782	822	862	902	941	981	*021	*060	*100	8 35.2 34.4 33.6
110	04	139	179	218	258	297	336	376	415	454	493	9 39.6 38.7 37.8
111		532	571	610	650	689	727	766	805	844	883	41 40 39
112		922	961	999	*038	*077	*115	*154	*192	*231	*269	1 4.1 4.0 3.9
113	05	308	346	385	423	461	500	538	576	614	652	2 8.2 8.0 7.8
114		690	729	767	805	843	881	918	956	994	*032	3 12.3 12.0 11.7
115	06	070	108	145	183	221	258	296	333	371	408	4 16.4 16.0 15.6
116		446	483	521	558	595	633	670	707	744	781	5 20.5 20.0 19.5
117		819	856	893	930	967	*004	*041	*078	*115	*151	6 24.0 24.0 23.4
118	07	188	225	262	298	335	372	408	445	482	518	7 28.7 28.0 27.3
119		555	591	628	664	700	737	773	809	846	882	8 32.8 32.0 31.2
120		918	954	990	*027	*063	*099	*135	*171	*207	*243	9 36.9 36.0 35.1
121	08	279	314	350	386	422	458	493	529	565	600	38 37 36
122		636	672	707	743	778	814	849	884	920	955	1 3.8 3.7 3.6
123		991	*026	*061	*096	*132	*167	*202	*237	*272	*307	2 7.6 7.4 7.2
124	09	342	377	412	447	482	517	552	587	621	656	3 11.4 11.1 10.8
125		691	726	760	795	830	864	899	934	968	*003	4 15.2 14.8 14.4
126	10	037	072	106	140	175	209	243	278	312	346	5 19.0 18.5 18.0
127		380	415	449	483	517	551	585	619	653	687	6 22.8 22.2 21.6
128		721	755	789	823	857	890	924	958	992	*025	7 26.6 25.9 25.2
129	11	059	093	126	160	193	227	261	294	327	361	8 30.4 29.6 28.8
130		394	428	461	494	528	561	594	628	661	694	9 34.2 33.3 32.4
131		727	760	793	826	860	893	926	959	992	*024	35 34 33
132	12	057	090	123	156	189	222	254	287	320	352	1 3.5 3.4 3.3
133		385	418	450	483	516	548	581	613	646	678	2 7.0 6.8 6.6
134		710	743	775	808	840	872	905	937	969	*001	3 10.5 10.2 9.9
135	13	033	066	098	130	162	194	226	258	290	322	4 14.0 13.6 13.2
136		354	386	418	450	481	513	545	577	609	640	5 17.5 17.0 16.5
137		672	704	735	767	799	830	862	893	925	956	6 21.0 20.4 19.8
138		988	*019	*051	*082	*114	*145	*176	*208	*239	*270	7 24.5 23.8 23.1
139	14	301	333	364	395	426	457	489	520	551	582	8 28.0 27.2 26.4
140		613	644	675	706	737	768	799	829	860	891	9 31.5 30.6 29.7
141		922	953	983	*014	*045	*076	*106	*137	*168	*198	32 31 30
142	15	229	259	290	320	351	381	412	442	473	503	1 3.2 3.1 3.0
143		534	564	594	625	655	685	715	746	776	806	2 6.4 6.2 6.0
144		836	866	897	927	957	987	*017	*047	*077	*107	3 9.6 9.3 9.0
145		16 137	167	197	227	256	286	316	346	376	406	4 12.8 12.4 12.0
146		435	465	495	524	554	584	613	643	673	702	5 16.0 15.5 15.0
147		732	761	791	820	850	879	909	938	967	997	6 19.2 18.6 18.0
148	17	026	056	085	114	143	173	202	231	260	289	7 22.4 21.7 21.0
149		319	348	377	406	435	464	493	522	551	580	8 25.8 24.9 24.0
												9 28.8 27.9 27.0
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N.	L.	0	1	2	3	4	5	6	7	8	9	PP.
150	17	609	638	667	696	725	754	782	811	840	869	
151		898	926	955	984	*013	*041	*070	*099	*127	*156	
152	18	184	213	241	270	298	327	355	384	412	441	29 28
153		469	498	526	554	583	611	639	667	696	724	1) 2.9 2.8
154		752	780	808	837	865	893	921	949	977	*005	2) 5.8 5.6
155	19	033	061	089	117	145	173	201	229	257	285	3) 8.7 8.4
156		812	840	868	896	924	951	979	507	535	562	4) 11.6 11.2
157		590	618	645	673	700	728	756	783	811	838	5) 14.5 14.0
158		866	893	921	948	976	*008	*030	*058	*085	*112	6) 17.4 16.8
159	20	140	167	194	222	249	276	303	330	358	385	7) 20.8 19.6
160		412	439	466	493	520	548	575	602	629	656	8) 23.2 22.4
161		683	710	737	763	790	817	844	871	898	925	9) 25.1 25.2
162		952	978	*005	*032	*059	*085	*112	*139	*165	*192	27 26
163	21	219	245	272	299	325	352	378	405	431	458	1) 2.7 2.6
164		484	511	537	564	590	617	643	669	696	722	2) 5.4 5.2
165		748	775	801	827	854	880	906	932	958	983	3) 8.1 7.8
166	22	011	037	063	089	115	141	167	194	220	246	4) 10.8 10.4
167		272	298	324	350	376	401	427	453	479	505	5) 13.5 13.0
168		531	557	583	608	634	660	686	712	737	763	6) 16.2 15.6
169		789	814	840	866	891	917	943	968	994	*019	7) 18.9 18.2
170	23	045	070	096	121	147	172	198	223	249	274	8) 21.6 20.8
171		300	325	350	376	401	426	452	477	502	528	9) 24.3 23.4
172		553	578	603	629	654	679	704	729	754	779	25
173		805	830	855	880	905	930	955	980	*005	*030	1) 2.5
174	24	055	080	105	130	155	180	204	229	254	279	2) 5.0
175		304	329	353	378	403	428	452	477	502	527	3) 7.5
176		551	576	601	625	650	674	699	724	748	773	4) 10.0
177		797	822	846	871	895	920	944	969	993	*018	5) 12.5
178	25	042	066	091	115	139	164	188	212	237	261	6) 15.0
179		285	310	334	358	382	406	431	455	479	503	7) 17.5
180		527	551	575	600	624	648	672	696	720	744	8) 20.0
181		768	792	816	840	864	888	912	935	959	983	9) 22.5
182	26	007	031	055	079	102	126	150	174	198	221	24 23
183		245	269	293	316	340	364	387	411	435	458	1) 2.4 2.3
184		482	505	529	553	576	600	623	647	670	694	2) 4.8 4.6
185		717	741	764	788	811	834	858	881	905	928	3) 7.2 6.9
186		951	975	998	*021	*045	*068	*091	*114	*138	*161	4) 9.6 9.2
187	27	184	207	231	254	277	300	323	346	370	393	5) 12.0 11.5
188		416	439	462	485	508	531	554	577	600	623	6) 14.4 13.8
189		646	669	692	715	738	761	784	807	830	852	7) 16.8 16.1
190		875	898	921	944	967	989	*012	*035	*058	*081	8) 19.2 18.4
191	28	103	126	149	171	194	217	240	262	285	307	9) 21.6 20.7
192		330	353	375	398	421	443	466	488	511	533	22 21
193		556	578	601	623	646	668	691	713	735	758	1) 2.2 2.1
194		780	803	825	847	870	892	914	937	959	981	2) 4.4 4.2
195	29	003	026	048	070	092	115	137	159	181	203	3) 6.6 6.3
196		226	248	270	292	314	336	358	380	403	425	4) 8.8 8.4
197		447	469	491	513	535	557	579	601	623	645	5) 11.0 10.5
198		667	688	710	732	754	776	798	820	842	863	6) 13.2 12.6
199		885	907	929	951	973	994	*016	*038	*060	*081	7) 15.4 14.7
												8) 17.6 16.8
												9) 19.8 18.9
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200	30	183	128	148	168	198	211	233	258	278	298	
201		320	341	363	384	406	428	449	471	492	514	
202		535	557	578	600	621	643	664	685	707	728	
203		750	771	792	814	835	856	878	899	920	942	22 21
204		963	984	*006	*027	*048	*069	*091	*112	*133	*154	1 2 3 2.1
205	31	175	197	218	239	260	281	302	323	348	368	2 4.4 4.2
206		387	408	429	450	471	492	513	534	555	576	3 6.6 6.3
207		597	618	639	660	681	702	723	744	765	785	4 8.8 8.4
208		806	827	848	869	890	911	931	952	973	994	5 11.0 10.5
209	32	015	035	056	077	098	118	139	160	181	201	6 12.2 12.6
210		222	243	263	284	305	325	346	366	387	408	7 14.4 14.7
211		428	449	469	490	510	531	552	572	593	613	8 17.6 16.8
212		634	654	675	695	715	736	756	777	797	818	9 19.8 18.9
213		838	858	879	899	919	940	960	980	*001	*021	20
214	33	041	062	082	102	122	143	163	183	203	224	1 2.0
215		244	264	284	304	325	345	365	385	405	425	2 4.0
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217		646	666	686	706	726	746	766	786	806	826	4 8.0
218		846	866	885	905	925	945	965	985	*005	*025	5 10.0
219	34	044	064	084	104	124	143	163	183	203	223	6 12.0
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221		439	459	479	498	518	537	557	577	596	616	8 16.0
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223		830	850	869	889	908	928	947	967	986	*005	1 1.9
224	35	025	044	064	083	102	122	141	160	180	199	2 3.8
225		218	238	257	276	295	315	334	353	372	392	3 5.7
226		411	430	449	468	488	507	526	545	564	583	4 7.6
227		603	622	641	660	679	698	717	736	755	774	5 9.5
228		793	813	832	851	870	889	908	927	946	965	6 11.4
229		984	*003	*021	*040	*059	*078	*097	*116	*135	*154	7 13.3
230	36	173	192	211	229	248	267	286	305	324	342	8 15.2
231		361	380	399	418	436	455	474	493	511	530	9 17.1
232		549	568	586	605	624	642	661	680	698	717	1 1.8
233		736	754	773	791	810	829	847	866	884	903	2 3.6
234		922	940	959	977	996	*014	*033	*051	*070	*088	3 5.4
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239		840	858	876	894	912	931	949	967	985	*003	8 14.4
240	38	021	039	057	075	093	112	130	148	166	184	9 16.2
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242		382	399	417	435	453	471	489	507	525	543	2 3.4
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244		739	757	775	792	810	828	846	863	881	899	4 6.8
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253		312	329	346	364	381	398	415	432	449	466	1 1.8
254		483	500	518	535	552	569	586	603	620	637	2 3.6
255		654	671	688	705	722	739	756	773	790	807	3 5.4
256		824	841	858	875	892	909	926	943	960	976	4 7.2
257		993	*010	*027	*044	*061	*078	*095	*111	*128	*145	5 9.0
258	41	162	179	196	212	229	246	263	280	296	313	6 10.8
259		330	347	363	380	397	414	430	447	464	481	7 12.6
260		497	514	531	547	564	581	597	614	631	647	8 14.4
261		664	681	697	714	731	747	764	780	797	814	9 16.2
262		830	847	863	880	896	913	929	946	963	979	
263		996	*012	*029	*045	*062	*078	*095	*111	*127	*144	1 1.7
264	42	160	177	193	210	226	243	259	275	292	308	2 3.4
265		325	341	357	374	390	406	423	439	455	472	3 5.1
266		488	504	521	537	553	570	586	602	619	635	4 6.8
267		651	667	684	700	716	732	749	765	781	797	5 8.5
268		813	830	846	862	878	894	911	927	943	959	6 10.2
269		975	991	*008	*024	*040	*056	*072	*088	*104	*120	7 11.9
270	43	136	152	169	185	201	217	233	249	265	281	8 13.6
271		297	313	329	345	361	377	393	409	425	441	9 15.3
272		457	473	489	505	521	537	553	569	584	600	
273		616	632	648	664	680	696	712	727	743	759	1 1.6
274		775	791	807	823	838	854	870	886	902	917	2 3.2
275		933	949	965	981	996	*012	*028	*044	*059	*075	3 4.8
276	44	091	107	122	138	154	170	185	201	217	232	4 6.4
277		248	264	279	295	311	326	342	358	373	389	5 8.0
278		404	420	436	451	467	483	498	514	529	545	6 9.6
279		560	576	592	607	623	638	654	669	685	700	7 11.2
280		716	731	747	762	778	793	809	824	840	855	8 12.8
281		871	886	902	917	932	948	963	979	994	*010	9 14.4
282	45	025	040	056	071	086	102	117	133	148	163	
283		179	194	209	225	240	255	271	286	301	317	1 1.5
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290		240	255	270	285	300	315	330	345	359	374	8 12.0
291		389	404	419	434	449	464	479	494	509	523	9 13.5
292		538	553	568	583	598	613	627	642	657	672	
293		687	702	716	731	746	761	776	790	805	820	1 1.4
294		835	850	864	879	894	909	923	938	953	967	2 2.8
295		982	997	*012	*028	*041	*056	*070	*085	*100	*114	3 4.2
296	47	129	144	159	173	188	202	217	232	246	261	4 5.6
297		276	290	305	319	334	349	363	378	392	407	5 7.0
298		422	436	451	465	480	494	509	524	538	553	6 8.4
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302	48	001	015	029	044	058	073	087	101	116	130	
303		144	159	173	187	202	216	230	244	259	273	
304		287	302	316	330	344	359	373	387	401	416	
305		430	444	458	473	487	501	515	530	544	558	15
306		572	586	601	615	629	643	657	671	686	700	1 1.5
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308		855	869	883	897	911	926	940	954	968	982	3 4.5
309		996	*010	*024	*038	*052	*066	*080	*094	*108	*122	4 6.0
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313		554	568	582	596	610	624	638	651	665	679	8 12.0
314		693	707	721	734	748	762	776	790	803	817	9 13.5
315		831	845	859	872	886	900	914	927	941	955	
316		969	982	996	*010	*024	*037	*051	*065	*079	*092	14
317	50	106	120	133	147	161	174	188	202	215	229	1 1.4
318		243	256	270	284	297	311	325	338	352	365	2 2.8
319		379	393	406	420	433	447	461	474	488	501	3 4.2
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321		651	664	678	691	705	718	732	745	759	772	5 7.0
322		786	799	813	826	840	853	866	880	893	907	6 8.4
323		920	934	947	961	974	987	*001	*014	*028	*041	7 9.8
324	51	055	068	081	095	108	121	135	148	162	175	8 11.2
325		188	202	215	228	242	255	268	282	295	308	9 12.6
326		322	335	348	362	375	388	402	415	428	441	
327		455	468	481	495	508	521	534	548	561	574	13
328		587	601	614	627	640	654	667	680	693	706	1 1.3
329		720	733	746	759	772	786	799	812	825	838	2 2.6
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331		983	996	*009	*022	*035	*048	*061	*075	*088	*101	4 5.2
332	52	114	127	140	153	166	179	192	205	218	231	5 6.5
333		244	257	270	284	297	310	323	336	349	362	6 7.8
334		375	388	401	414	427	440	453	466	479	492	7 9.1
335		504	517	530	543	556	569	582	595	608	621	8 10.4
336		634	647	660	673	686	699	711	724	737	750	9 11.7
337		763	776	789	802	815	827	840	853	866	879	
338		892	905	917	930	943	956	969	982	994	*007	12
339	53	020	033	046	058	071	084	097	110	122	135	1 1.2
340		148	161	173	186	199	212	224	237	250	263	2 2.4
341		275	288	301	314	326	339	352	364	377	390	3 3.6
342		403	415	428	441	453	466	479	491	504	517	4 4.8
343		529	542	555	567	580	593	605	618	631	643	5 6.0
344		656	668	681	694	706	719	732	744	757	769	6 7.2
345		782	794	807	820	832	845	857	870	882	895	7 8.4
346		908	920	933	945	958	970	983	995	*008	*020	8 9.6
347	54	033	045	058	070	083	095	108	120	133	145	9 10.8
348		158	170	183	195	208	220	233	245	258	270	
349		283	295	307	320	332	345	357	370	382	394	
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350	54	487	419	432	444	456	489	481	484	508	518	13 1 1.3 2 2.6 3 3.9 4 5.2 5 6.5 6 7.8 7 9.1 8 10.4 9 11.7
351		531	543	555	568	580	593	605	617	630	642	
352		654	667	679	691	704	716	728	741	753	765	
353		777	790	802	814	827	839	851	864	876	888	
354		900	913	925	937	949	962	974	986	998	*011	
355	55	023	035	047	060	072	084	096	108	121	133	
356		145	157	169	182	194	206	218	230	242	255	
357		267	279	291	303	315	328	340	352	364	376	
358		398	400	413	425	437	449	461	473	485	497	
359		509	522	534	546	558	570	582	594	606	618	
360		630	642	654	666	678	691	703	715	727	739	12 1 1.2 2 2.4 3 3.6 4 4.8 5 6.0 6 7.2 7 8.4 8 9.6 9 10.8
361		751	763	775	787	799	811	823	835	847	859	
362		871	883	895	907	919	931	943	955	967	979	
363		991	*003	*015	*027	*038	*050	*062	*074	*086	*098	
364	56	110	122	134	146	158	170	182	194	205	217	
365		229	241	253	265	277	289	301	312	324	336	
366		348	360	372	384	396	407	419	431	443	455	
367		467	478	490	502	514	526	538	549	561	573	
368		585	597	608	620	632	644	656	667	679	691	
369		703	714	726	738	750	761	773	785	797	808	
370		820	832	844	855	867	879	891	902	914	926	11 1 1.1 2 2.2 3 3.3 4 4.4 5 5.5 6 6.6 7 7.7 8 8.8 9 9.9
371		937	949	961	972	984	996	*008	*019	*031	*043	
372	57	054	066	078	089	101	113	124	136	148	159	
373		171	183	194	206	217	229	241	252	264	276	
374		287	299	310	322	334	345	357	368	380	392	
375		403	415	426	438	449	461	473	484	496	507	
376		519	530	542	553	565	576	588	600	611	623	
377		634	646	657	669	680	692	703	715	726	738	
378		749	761	772	784	795	807	818	830	841	852	
379		864	875	887	898	910	921	933	944	955	967	
380		978	990	*001	*013	*024	*035	*047	*058	*070	*081	10 1 1.0 2 2.0 3 3.0 4 4.0 5 5.0 6 6.0 7 7.0 8 8.0 9 9.0
381	58	092	104	115	127	138	149	161	172	184	195	
382		206	218	229	240	252	263	274	286	297	309	
383		320	331	343	354	365	377	388	399	410	422	
384		433	444	456	467	478	490	501	512	524	535	
385		546	557	568	580	591	602	614	625	636	647	
386		659	670	681	692	704	715	726	737	749	760	
387		771	782	794	805	816	827	838	850	861	872	
388		883	894	906	917	928	939	950	961	973	984	
389		995	*006	*017	*028	*040	*051	*062	*073	*084	*095	
390	59	106	118	129	140	151	162	173	184	195	207	9 1 1.0 2 2.0 3 3.0 4 4.0 5 5.0 6 6.0 7 7.0 8 8.0 9 9.0
391		218	229	240	251	262	273	284	295	306	318	
392		329	340	351	362	373	384	395	406	417	428	
393		439	450	461	472	483	494	506	517	528	539	
394		550	561	572	583	594	605	616	627	638	649	
395		660	671	682	693	704	715	726	737	748	759	
396		770	780	791	802	813	824	835	846	857	868	
397		879	890	901	912	923	934	945	956	966	977	
398		988	999	*010	*021	*032	*043	*054	*065	*076	*086	
399	60	097	108	119	130	141	152	163	173	184	195	
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400	60	206	217	228	239	249	260	271	282	293	304	
401		314	325	336	347	358	369	379	390	401	412	
402		423	433	444	455	466	477	487	498	509	520	
403		531	541	552	563	574	584	595	606	617	627	
404		638	649	660	670	681	692	703	713	724	735	
405		746	756	767	778	788	799	810	821	831	842	
406		853	863	874	885	895	906	917	927	938	949	
407		959	970	981	991	*002	*013	*023	*034	*045	*055	11
408	61	066	077	087	098	109	119	130	140	151	162	11.1
409		172	183	194	204	215	225	236	247	257	268	22.2
410		278	289	300	310	321	331	342	352	363	374	33.3
411		384	395	405	416	426	437	448	458	469	479	44.4
412		490	500	511	521	532	542	553	563	574	584	55.5
413		595	606	616	627	637	648	658	669	679	690	66.6
414		700	711	721	731	742	752	763	773	784	794	77.7
415		805	815	826	836	847	857	868	878	888	899	88.8
416		909	920	930	941	951	962	972	982	993	*003	99.9
417	62	014	024	034	045	055	066	076	086	097	107	
418		118	128	138	149	159	170	180	190	201	211	
419		221	232	242	252	263	273	284	294	304	315	
420		325	335	346	356	366	377	387	397	408	418	
421		428	439	449	459	469	480	490	500	511	521	10
422		531	542	552	562	572	583	593	603	613	624	11.0
423		634	644	655	665	675	685	696	706	716	726	22.0
424		737	747	757	767	778	788	798	808	818	829	33.0
425		839	849	859	870	880	890	900	910	921	931	44.0
426		941	951	961	972	982	992	*002	*012	*022	*033	55.0
427	63	043	053	063	073	083	094	104	114	124	134	66.0
428		144	155	165	175	185	195	205	215	225	236	77.0
429		246	256	266	276	286	296	306	317	327	337	88.0
430		347	357	367	377	387	397	407	417	428	438	99.0
431		448	458	468	478	488	498	508	518	528	538	
432		548	558	568	579	589	599	609	619	629	639	
433		649	659	669	679	689	699	709	719	729	739	
434		749	759	769	779	789	799	809	819	829	839	
435		849	859	869	879	889	899	909	919	929	939	9
436		949	959	969	979	988	998	*008	*018	*028	*038	10.9
437	64	048	058	068	078	088	098	108	118	128	137	21.8
438		147	157	167	177	187	197	207	217	227	237	32.7
439		246	256	266	276	286	296	306	316	326	335	43.0
440		345	355	365	375	385	395	404	414	424	434	54.0
441		444	454	464	473	483	493	503	513	523	532	65.4
442		542	552	562	572	582	591	601	611	621	631	76.8
443		640	650	660	670	680	689	699	709	719	729	87.2
444		738	748	758	768	777	787	797	807	816	826	98.1
445		836	846	856	865	875	885	895	904	914	924	
446		933	943	953	963	972	982	992	*002	*011	*021	
447	65	031	040	050	060	070	079	089	099	108	118	
448		128	137	147	157	167	176	186	196	205	215	
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450	85	321	381	341	350	380	389	379	389	398	408	
451		418	427	437	447	456	466	475	485	495	504	
452		514	523	533	543	552	562	571	581	591	600	
453		610	619	629	639	648	658	667	677	686	696	
454		706	715	725	734	744	753	763	772	782	792	
455		801	811	820	830	839	849	858	868	877	887	
456		896	906	916	925	935	944	954	963	973	982	
457		992	*001	*011	*020	*030	*089	*049	*058	*068	*077	10
458	66	087	096	106	115	124	134	143	153	162	172	11.0
459		181	191	200	210	219	229	238	247	257	266	22.0
460		276	285	295	304	314	323	332	342	351	361	33.0
461		370	380	389	398	408	417	427	436	445	455	44.0
462		464	474	483	492	502	511	521	530	539	549	55.0
463		558	567	577	586	596	605	614	624	633	642	66.0
464		652	661	671	680	689	699	708	717	727	736	77.0
465		745	755	764	773	783	792	801	811	820	829	88.0
466		839	848	857	867	876	885	894	904	913	922	99.0
467		932	941	950	960	969	978	987	997	*006	*015	
468	67	025	034	043	052	062	071	080	089	099	108	
469		117	127	136	145	154	164	173	182	191	201	
470		210	219	228	237	247	256	265	274	284	293	
471		302	311	321	330	339	348	357	367	376	385	9
472		394	403	413	422	431	440	449	459	468	477	10.9
473		486	495	504	514	523	532	541	550	560	569	21.8
474		578	587	596	605	614	624	633	642	651	660	32.7
475		669	679	688	697	706	715	724	733	742	752	43.6
476		761	770	779	788	797	806	815	825	834	843	54.5
477		852	861	870	879	888	897	906	916	925	934	65.4
478		943	952	961	970	979	988	997	*006	*015	*024	76.3
479	68	034	043	052	061	070	079	088	097	106	115	87.2
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481		215	224	233	242	251	260	269	278	287	296	
482		305	314	323	332	341	350	359	368	377	386	
483		395	404	413	422	431	440	449	458	467	476	
484		485	494	502	511	520	529	538	547	556	565	
485		574	583	592	601	610	619	628	637	646	655	8
486		664	673	681	690	699	708	717	726	735	744	10.8
487		753	762	771	780	789	797	806	815	824	833	21.6
488		842	851	860	869	878	886	895	904	913	922	32.4
489		931	940	949	958	966	975	984	993	*002	*011	43.2
490	69	020	028	037	046	055	064	073	082	090	099	54.0
491		108	117	126	135	144	152	161	170	179	188	64.8
492		197	205	214	223	232	241	249	258	267	276	75.6
493		285	294	302	311	320	329	338	346	355	364	86.4
494		373	381	390	399	408	417	425	434	443	452	97.2
495		461	469	478	487	496	504	513	522	531	539	
496		548	557	566	574	583	592	601	609	618	627	
497		636	644	653	662	671	679	688	697	705	714	
498		723	732	740	749	758	767	775	784	793	801	
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500	69	897	908	914	923	932	940	949	958	966	975	0 10.9 21.8 32.7 43.6 54.5 65.4 76.3 87.2 98.1
501		984	992	*001	*010	*018	*027	*036	*044	*053	*062	
502	70	070	079	088	096	105	114	122	131	140	148	
503		157	165	174	183	191	200	209	217	226	234	
504		243	252	260	269	278	286	295	303	312	321	
505		329	338	346	355	364	372	381	389	398	406	
506		415	424	432	441	449	458	467	475	484	492	
507		501	509	518	526	535	544	552	561	569	578	
508		586	595	603	612	621	629	638	646	655	663	
509		672	680	689	697	706	714	723	731	740	749	
510		757	766	774	783	791	800	808	817	825	834	8 10.8 21.6 32.4 43.2 54.0 64.8 75.6 86.4 97.2
511		842	851	859	868	876	885	893	902	910	919	
512		927	935	944	952	961	969	978	986	995	*003	
513	71	012	020	029	037	046	054	063	071	079	088	
514		096	105	113	122	130	139	147	155	164	172	
515		181	189	198	206	214	223	231	240	248	257	
516		265	273	282	290	299	307	315	324	332	341	
517		349	357	366	374	383	391	399	408	416	425	
518		433	441	450	458	466	475	483	492	500	508	
519		517	525	533	542	550	559	567	575	584	592	
520		600	609	617	625	634	642	650	659	667	675	7 10.7 21.4 32.1 42.8 53.5 64.2 74.9 85.6 96.3
521		684	692	700	709	717	725	734	742	750	759	
522		767	775	784	792	800	809	817	825	834	842	
523		850	858	867	875	883	892	900	908	917	925	
524		933	941	950	958	966	975	983	991	999	*008	
525	72	016	024	032	041	049	057	066	074	082	090	
526		099	107	115	123	132	140	148	156	165	173	
527		181	189	198	206	214	222	230	239	247	255	
528		263	272	280	288	296	304	313	321	329	337	
529		346	354	362	370	378	387	395	403	411	419	
530		428	436	444	452	460	469	477	485	493	501	6 10.6 21.3 32.0 42.7 53.4 64.1 74.8 85.5 96.2
531		509	518	526	534	542	550	558	567	575	583	
532		591	599	607	616	624	632	640	648	656	665	
533		673	681	689	697	705	713	722	730	738	746	
534		754	762	770	779	787	795	803	811	819	827	
535		835	843	852	860	868	876	884	892	900	908	
536		916	925	933	941	949	957	965	973	981	989	
537		997	*006	*014	*022	*030	*038	*046	*054	*062	*070	
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539		159	167	175	183	191	199	207	215	223	231	
540		239	247	255	263	272	280	288	296	304	312	5 10.5 21.2 31.9 42.6 53.3 64.0 74.7 85.4 96.1
541		320	328	336	344	352	360	368	376	384	392	
542		400	408	416	424	432	440	448	456	464	472	
543		480	488	496	504	512	520	528	536	544	552	
544		560	568	576	584	592	600	608	616	624	632	
545		640	648	656	664	672	679	687	695	703	711	
546		719	727	735	743	751	759	767	775	783	791	
547		799	807	815	823	830	838	846	854	862	870	
548		878	886	894	902	910	918	926	933	941	949	
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550	74	036	044	052	060	068	076	084	092	099	107	8 10.8 21.6 32.4 43.2 54.0 64.8 75.6 86.4 97.2
551		115	123	131	139	147	155	163	170	178	186	
552		194	202	210	218	225	233	241	249	257	265	
553		273	280	288	296	304	312	320	327	335	343	
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555		429	437	445	453	461	468	476	484	492	500	
556		507	515	523	531	539	547	554	562	570	578	
557		586	593	601	609	617	624	632	640	648	656	
558		663	671	679	687	695	702	710	718	726	733	
559		741	749	757	764	772	780	788	796	803	811	
560		819	827	834	842	850	858	865	873	881	889	7 10.7 21.4 32.1 42.8 53.5 64.2 74.9 85.6 96.3
561		896	904	912	920	927	935	943	950	958	966	
562		974	981	989	997	*005	*012	*020	*028	*035	*043	
563	75	051	059	066	074	082	089	097	105	113	120	
564		128	136	143	151	159	166	174	182	189	197	
565		205	213	220	228	236	243	251	259	266	274	
566		282	289	297	305	312	320	328	335	343	351	
567		358	366	374	381	389	397	404	412	420	427	
568		435	442	450	458	465	473	481	488	496	504	
569		511	519	526	534	542	549	557	565	572	580	
570		587	595	603	610	618	626	633	641	648	656	7 10.7 21.4 32.1 42.8 53.5 64.2 74.9 85.6 96.3
571		664	671	679	686	694	702	709	717	724	732	
572		740	747	755	762	770	778	785	793	800	808	
573		815	823	831	838	846	853	861	868	876	884	
574		891	899	906	914	921	929	937	944	952	959	
575		967	974	982	989	997	*005	*012	*020	*027	*035	
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578		193	200	208	215	223	230	238	245	253	260	
579		268	275	283	290	298	305	313	320	328	335	
580		343	350	358	365	373	380	388	395	403	410	7 10.7 21.4 32.1 42.8 53.5 64.2 74.9 85.6 96.3
581		418	425	433	440	448	455	462	470	477	485	
582		492	500	507	515	522	530	537	545	552	559	
583		567	574	582	589	597	604	612	619	626	634	
584		641	649	656	664	671	678	686	693	701	708	
585		716	723	730	738	745	753	760	768	775	782	
586		790	797	805	812	819	827	834	842	849	856	
587		864	871	879	886	893	901	908	916	923	930	
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589	77	012	019	026	034	041	048	056	063	070	078	
590		085	093	100	107	115	122	129	137	144	151	7 10.7 21.4 32.1 42.8 53.5 64.2 74.9 85.6 96.3
591		159	166	173	181	188	195	203	210	217	225	
592		232	240	247	254	262	269	276	283	291	298	
593		305	313	320	327	335	342	349	357	364	371	
594		379	386	393	401	408	415	422	430	437	444	
595		452	459	466	474	481	488	495	503	510	517	
596		525	532	539	546	554	561	568	576	583	590	
597		597	605	612	619	627	634	641	648	656	663	
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602		960	967	974	981	988	996	*003	*010	*017	*025	
603	78	082	039	046	053	061	068	075	082	089	097	
604		104	111	118	125	132	140	147	154	161	168	
605		176	183	190	197	204	211	219	226	233	240	
606		247	254	262	269	276	283	290	297	305	312	
607		319	326	333	340	347	355	362	369	376	383	
608		390	398	405	412	419	426	433	440	447	455	
609		462	469	476	483	490	497	504	512	519	526	
610		533	540	547	554	561	569	576	583	590	597	
611		604	611	618	625	633	640	647	654	661	668	
612		675	682	689	696	704	711	718	725	732	739	
613		746	753	760	767	774	781	789	796	803	810	
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615		888	895	902	909	916	923	930	937	944	951	
616		958	965	972	979	986	993	*000	*007	*014	*021	
617	79	029	036	043	050	057	064	071	078	085	092	
618		099	106	113	120	127	134	141	148	155	162	
619		169	176	183	190	197	204	211	218	225	232	
620		239	246	253	260	267	274	281	288	295	302	
621		309	316	323	330	337	344	351	358	365	372	
622		379	386	393	400	407	414	421	428	435	442	
623		449	456	463	470	477	484	491	498	505	511	
624		518	525	532	539	546	553	560	567	574	581	
625		588	595	602	609	616	623	630	637	644	650	
626		657	664	671	678	685	692	699	706	713	720	
627		727	734	741	748	754	761	768	775	782	789	
628		796	803	810	817	824	831	837	844	851	858	
629		865	872	879	886	893	900	906	913	920	927	
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631	80	003	010	017	024	030	037	044	051	058	065	
632		072	079	085	092	099	106	113	120	127	134	
633		140	147	154	161	168	175	182	188	195	202	
634		209	216	223	229	236	243	250	257	264	271	
635		277	284	291	298	305	312	318	325	332	339	
636		346	353	359	366	373	380	387	393	400	407	
637		414	421	428	434	441	448	455	462	468	475	
638		482	489	496	502	509	516	523	530	536	543	
639		550	557	564	570	577	584	591	598	604	611	
640		618	625	632	638	645	652	659	665	672	679	
641		686	693	699	706	713	720	726	733	740	747	
642		754	760	767	774	781	787	794	801	808	814	
643		821	828	835	841	848	855	862	868	875	882	
644		889	895	902	909	916	922	929	936	943	949	
645		956	963	969	976	983	990	996	*003	*010	*017	
646	81	023	030	037	043	050	057	064	070	077	084	
647		090	097	104	111	117	124	131	137	144	151	
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651		358	365	371	378	385	391	398	405	411	418	
652		425	431	438	445	451	458	465	471	478	485	
653		491	498	505	511	518	525	531	538	544	551	
654		558	564	571	578	584	591	598	604	611	617	
655		624	631	637	644	651	657	664	671	677	684	
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659		889	895	902	908	915	921	928	935	941	948	
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661	82	020	027	033	040	046	053	060	066	073	079	
662		086	092	099	105	112	119	125	132	138	145	
663		151	158	164	171	178	184	191	197	204	210	
664		217	223	230	236	243	249	256	263	269	276	
665		282	289	295	302	308	315	321	328	334	341	
666		347	354	360	367	373	380	387	393	400	406	
667		413	419	426	432	439	445	452	458	465	471	
668		478	484	491	497	504	510	517	523	530	536	
669		543	549	556	562	569	575	582	588	595	601	
670		607	614	620	627	633	640	646	653	659	666	9 110.5 21.1 31.7 41.3 50.9 60.5 70.1 79.7 89.3
671		672	679	685	692	698	705	711	718	724	730	
672		737	743	750	756	763	769	776	782	789	795	
673		802	808	814	821	827	834	840	847	853	860	
674		866	872	879	885	892	898	905	911	918	924	
675		930	937	943	950	956	963	969	975	982	988	
676		995	*001	*008	*014	*020	*027	*033	*040	*046	*052	
677	83	059	065	072	078	085	091	097	104	110	117	
678		123	129	136	142	149	155	161	168	174	181	
679		187	193	200	206	213	219	225	232	238	245	
680		251	257	264	270	276	283	289	296	302	308	10 110.4 21.0 31.6 41.2 50.8 60.4 70.0 79.6 89.2
681		315	321	327	334	340	347	353	359	366	372	
682		378	385	391	398	404	410	417	423	429	436	
683		442	448	455	461	467	474	480	487	493	499	
684		506	512	518	525	531	537	544	550	556	563	
685		569	575	582	588	594	601	607	613	620	626	
686		632	639	645	651	658	664	670	677	683	689	
687		696	702	708	715	721	727	734	740	746	753	
688		759	765	771	778	784	790	797	803	809	816	
689		822	828	835	841	847	853	860	866	872	879	
690		885	891	897	904	910	916	923	929	935	942	11 110.3 20.9 31.5 41.1 50.7 60.3 69.9 79.5 89.1
691		948	954	960	967	973	979	985	992	998	*004	
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693		073	080	086	092	098	105	111	117	123	130	
694		136	142	148	155	161	167	173	180	186	192	
695		198	205	211	217	223	230	236	242	248	255	
696		261	267	273	280	286	292	298	305	311	317	
697		323	330	336	342	348	354	361	367	373	379	
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702		634	640	646	652	658	665	671	677	683	689	
703		696	702	708	714	720	726	733	739	745	751	
704		757	763	770	776	782	788	794	800	807	813	
705		819	825	831	837	844	850	856	862	868	874	
706		880	887	893	899	905	911	917	924	930	936	
707		942	948	954	960	967	973	979	985	991	997	
708	85	003	009	016	022	028	034	040	046	052	058	7
709		065	071	077	083	089	095	101	107	114	120	10.7
710		128	132	138	144	150	156	163	169	175	181	21.4
711		187	193	199	205	211	217	224	230	236	242	32.1
712		248	254	260	266	272	278	285	291	297	303	42.8
713		309	315	321	327	333	339	345	352	358	364	53.5
714		370	376	382	388	394	400	406	412	418	425	64.2
715		431	437	443	449	455	461	467	473	479	485	74.9
716		491	497	503	509	516	522	528	534	540	546	85.6
717		552	558	564	570	576	582	588	594	600	606	96.3
718		612	618	625	631	637	643	649	655	661	667	
719		673	679	685	691	697	703	709	715	721	727	
720		733	739	745	751	757	763	769	775	781	788	
721		794	800	806	812	818	824	830	836	842	848	6
722		854	860	866	872	878	884	890	896	902	908	10.6
723		914	920	926	932	938	944	950	956	962	968	21.2
724		974	980	986	992	998	*004	*010	*016	*022	*028	31.8
725	86	034	040	046	052	058	064	070	076	082	088	42.4
726		094	100	106	112	118	124	130	136	141	147	52.0
727		153	159	165	171	177	183	189	195	201	207	62.6
728		213	219	225	231	237	243	249	255	261	267	74.2
729		273	279	285	291	297	303	308	314	320	326	84.8
730		332	338	344	350	356	362	368	374	380	386	95.4
731		392	398	404	410	415	421	427	433	439	445	
732		451	457	463	469	475	481	487	493	499	504	
733		510	516	522	528	534	540	546	552	558	564	
734		570	576	581	587	593	599	605	611	617	623	
735		629	635	641	646	652	658	664	670	676	682	5
736		688	694	700	705	711	717	723	729	735	741	10.5
737		747	753	759	764	770	776	782	788	794	800	21.0
738		806	812	817	823	829	835	841	847	853	859	31.5
739		864	870	876	882	888	894	900	906	911	917	42.0
740		923	929	935	941	947	953	958	964	970	976	52.5
741		982	988	994	999	*005	*011	*017	*023	*029	*035	63.0
742	87	040	046	052	058	064	070	075	081	087	093	73.5
743		099	105	111	116	122	128	134	140	146	151	84.0
744		157	163	169	175	181	186	192	198	204	210	94.5
745		216	221	227	233	239	245	251	256	262	268	
746		274	280	286	291	297	303	309	315	320	326	
747		332	338	344	349	355	361	367	373	379	384	
748		390	396	402	408	413	419	425	431	437	442	
749		448	454	460	466	471	477	483	489	495	500	
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752		622	628	633	639	645	651	656	662	668	674	
753		679	685	691	697	703	708	714	720	726	731	
754		737	743	749	754	760	766	772	777	783	789	
755		795	800	806	812	818	823	829	835	841	846	
756		852	858	864	869	875	881	887	892	898	904	
757		910	915	921	927	933	938	944	950	955	961	
758		967	973	978	984	990	996	*001	*007	*013	*018	
759	88	024	030	036	041	047	053	058	064	070	076	
760		081	087	093	098	104	110	116	121	127	133	
761		138	144	150	156	161	167	173	178	184	190	6
762		195	201	207	213	218	224	230	235	241	247	10.6
763		252	258	264	270	275	281	287	292	298	304	21.2
764		309	315	321	326	332	338	343	349	355	360	31.8
765		366	372	377	383	389	395	400	406	412	417	42.4
766		423	429	434	440	446	451	457	463	468	474	53.0
767		480	485	491	497	502	508	513	519	525	530	63.6
768		536	542	547	553	559	564	570	576	581	587	74.2
769		593	598	604	610	615	621	627	632	638	643	84.8
770		648	655	660	666	672	677	683	689	694	700	95.4
771		705	711	717	722	728	734	739	745	750	756	
772		762	767	773	779	784	790	795	801	807	812	
773		818	824	829	835	840	846	852	857	863	868	
774		874	880	885	891	897	902	908	913	919	925	
775		930	936	941	947	953	958	964	969	975	981	
776		986	992	997	*003	*009	*014	*020	*025	*031	*037	
777	89	042	048	053	059	064	070	076	081	087	092	
778		098	104	109	115	120	126	131	137	143	148	
779		154	159	165	170	176	182	187	193	198	204	
780		209	215	221	226	232	237	243	248	254	260	5
781		265	271	276	282	287	293	298	304	310	315	10.5
782		321	326	332	337	343	348	354	360	365	371	21.0
783		376	382	387	393	398	404	409	415	421	426	31.5
784		432	437	443	448	454	459	465	470	476	481	42.0
785		487	492	498	504	509	515	520	526	531	537	52.5
786		542	548	553	559	564	570	575	581	586	592	63.0
787		597	603	609	614	620	625	631	636	642	647	73.5
788		653	658	664	669	675	680	686	691	697	702	84.0
789		708	713	719	724	730	735	741	746	752	757	94.5
790		763	768	774	779	785	790	796	801	807	812	
791		818	823	829	834	840	845	851	856	862	867	
792		873	878	883	889	894	900	905	911	916	922	
793		927	933	938	944	949	955	960	966	971	977	
794		982	988	993	998	*004	*009	*015	*020	*026	*031	
795	90	037	042	048	053	059	064	069	075	080	086	
796		091	097	102	108	113	119	124	129	135	140	
797		146	151	157	162	168	173	179	184	189	195	
798		200	206	211	217	222	227	233	238	244	249	
799		255	260	266	271	276	282	287	293	298	304	
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800	90	309	314	320	326	331	336	342	347	352	358	6 10.6 21.2 31.8 42.4 53.0 63.6 74.2 84.8 95.4
801		363	369	374	380	385	390	396	401	407	412	
802		417	423	428	434	439	445	450	455	461	466	
803		472	477	482	488	493	499	504	509	515	520	
804		526	531	536	542	547	553	558	563	569	574	
805		580	585	590	596	601	607	612	617	623	628	
806		634	639	644	650	655	660	666	671	677	682	
807		687	693	698	703	709	714	720	725	730	736	
808		741	747	752	757	763	768	773	779	784	789	
809		795	800	806	811	816	822	827	832	838	843	
810		849	854	859	865	870	875	881	886	891	897	5 10.5 21.0 31.5 42.0 52.5 63.0 73.5 84.0 94.5
811		902	907	913	918	924	929	934	940	945	950	
812		956	961	966	972	977	982	988	993	998	*004	
813	91	009	014	020	025	030	036	041	046	052	057	
814		062	068	073	078	084	089	094	100	105	110	
815		116	121	126	132	137	142	148	153	158	164	
816		169	174	180	185	190	196	201	206	212	217	
817		222	228	233	238	243	249	254	259	265	270	
818		275	281	286	291	297	302	307	312	318	323	
819		328	334	339	344	350	355	360	365	371	376	
820		381	387	392	397	403	408	413	418	424	429	5 10.5 21.0 31.5 42.0 52.5 63.0 73.5 84.0 94.5
821		434	440	445	450	455	461	466	471	477	482	
822		487	492	498	503	508	514	519	524	529	535	
823		540	545	551	556	561	566	572	577	582	587	
824		593	598	603	609	614	619	624	630	635	640	
825		645	651	656	661	666	672	677	682	687	693	
826		698	703	709	714	719	724	730	735	740	745	
827		751	756	761	766	772	777	782	787	793	798	
828		803	808	814	819	824	829	834	840	845	850	
829		855	861	866	871	876	882	887	892	897	903	
830		908	913	918	924	929	934	939	944	950	955	5 10.5 21.0 31.5 42.0 52.5 63.0 73.5 84.0 94.5
831		960	965	971	976	981	986	991	997	*002	*007	
832	92	012	018	023	028	033	038	044	049	054	059	
833		065	070	075	080	085	091	096	101	106	111	
834		117	122	127	132	137	143	148	153	158	163	
835		169	174	179	184	189	195	200	205	210	215	
836		221	226	231	236	241	247	252	257	262	267	
837		273	278	283	288	293	298	304	309	314	319	
838		324	330	335	340	345	350	355	361	366	371	
839		376	381	387	392	397	402	407	412	418	423	
840		428	433	438	443	449	454	459	464	469	474	5 10.5 21.0 31.5 42.0 52.5 63.0 73.5 84.0 94.5
841		480	485	490	495	500	505	511	516	521	526	
842		531	536	542	547	552	557	562	567	572	578	
843		583	588	593	598	603	609	614	619	624	629	
844		634	639	645	650	655	660	665	670	675	681	
845		686	691	696	701	706	711	716	722	727	732	
846		737	742	747	752	758	763	768	773	778	783	
847		788	793	799	804	809	814	819	824	829	834	
848		840	845	850	855	860	865	870	875	881	886	
849		891	896	901	906	911	916	921	927	932	937	
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850	92	942	947	952	957	962	967	973	978	983	988	
851		993	998	*003	*008	*013	*018	*024	*029	*034	*039	
852	93	044	049	054	059	064	069	075	080	085	090	
853		095	100	105	110	115	120	125	131	136	141	
854		146	151	156	161	166	171	176	181	186	192	
855		197	202	207	212	217	222	227	232	237	242	
856		247	252	258	263	268	273	278	283	288	293	
857		298	303	308	313	318	323	328	334	339	344	
858		349	354	359	364	369	374	379	384	389	394	
859		399	404	409	414	420	425	430	435	440	445	6
860		450	455	460	465	470	475	480	485	490	495	10.6
861		500	505	510	515	520	525	531	536	541	546	21.2
862		551	556	561	566	571	576	581	586	591	596	31.8
863		601	606	611	616	621	626	631	636	641	646	42.4
864		651	656	661	666	671	676	682	687	692	697	53.0
865		702	707	712	717	722	727	732	737	742	747	63.6
866		752	757	762	767	772	777	782	787	792	797	74.2
867		802	807	812	817	822	827	832	837	842	847	84.8
868		852	857	862	867	872	877	882	887	892	897	95.4
869		902	907	912	917	922	927	932	937	942	947	
870		952	957	962	967	972	977	982	987	992	997	
871	94	002	007	012	017	022	027	032	037	042	047	5
872		052	057	062	067	072	077	082	086	091	096	10.5
873		101	106	111	116	121	126	131	136	141	146	21.0
874		151	156	161	166	171	176	181	186	191	196	31.5
875		201	206	211	216	221	226	231	236	240	245	42.0
876		250	255	260	265	270	275	280	285	290	295	52.5
877		300	305	310	315	320	325	330	335	340	345	63.0
878		349	354	359	364	369	374	379	384	389	394	73.5
879		399	404	409	414	419	424	429	433	438	443	84.0
880		448	453	458	463	468	473	478	483	488	493	94.5
881		498	503	507	512	517	522	527	532	537	542	
882		547	552	557	562	567	571	576	581	586	591	
883		596	601	606	611	616	621	626	630	635	640	
884		645	650	655	660	665	670	675	680	685	689	
885		694	699	704	709	714	719	724	729	734	738	4
886		743	748	753	758	763	768	773	778	783	787	10.4
887		792	797	802	807	812	817	822	827	832	836	20.8
888		841	846	851	856	861	866	871	876	880	885	31.2
889		890	895	900	905	910	915	919	924	929	934	41.6
890		939	944	949	954	959	963	968	973	978	983	52.0
891		988	993	998	*002	*007	*012	*017	*022	*027	*032	62.4
892	95	036	041	046	051	056	061	066	071	075	080	72.8
893		085	090	095	100	105	109	114	119	124	129	83.2
894		134	139	143	148	153	158	163	168	173	177	93.6
895		182	187	192	197	202	207	211	216	221	226	
896		231	236	240	245	250	255	260	265	270	274	
897		279	284	289	294	299	303	308	313	318	323	
898		328	332	337	342	347	352	357	361	366	371	
899		376	381	386	390	395	400	405	410	415	419	
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900	95	424	429	434	439	444	448	453	458	463	468	
901		472	477	482	487	492	497	501	506	511	516	
902		521	525	530	535	540	545	550	554	559	564	
903		569	574	578	583	588	593	598	602	607	612	
904		617	622	626	631	636	641	646	650	655	660	
905		665	670	674	679	684	689	694	698	703	708	
906		713	718	722	727	732	737	742	746	751	756	
907		761	766	770	775	780	785	789	794	799	804	
908		809	813	818	823	828	832	837	842	847	852	
909		856	861	866	871	875	880	885	890	895	899	
910		904	909	914	918	923	928	933	938	942	947	
911		952	957	961	966	971	976	980	985	990	995	
912		999	*004	*009	*014	*019	*023	*028	*033	*038	*042	5
913	96	047	052	057	061	066	071	076	080	085	090	10.5
914		095	099	104	109	114	118	123	128	133	137	21.0
915		142	147	152	156	161	166	171	176	180	185	31.5
916		190	194	199	204	209	213	218	223	227	232	42.0
917		237	242	246	251	256	261	265	270	275	280	52.5
918		284	289	294	298	303	308	313	317	322	327	63.0
919		332	336	341	346	350	355	360	365	369	374	73.5
920		379	384	388	393	398	402	407	412	417	421	84.0
921		426	431	435	440	445	450	454	459	464	468	94.5
922		473	478	483	487	492	497	501	506	511	515	
923		520	525	530	534	539	544	548	553	558	562	
924		567	572	577	581	586	591	595	600	605	609	
925		614	619	624	628	633	638	642	647	652	656	
926		661	666	670	675	680	685	689	694	699	703	
927		708	713	717	722	727	731	736	741	745	750	
928		755	759	764	769	774	778	783	788	792	797	
929		802	806	811	816	820	825	830	834	839	844	
930		848	853	858	862	867	872	876	881	886	890	
931		895	900	904	909	914	918	923	928	932	937	
932		942	946	951	956	960	965	970	974	979	984	4
933		988	993	997	*002	*007	*011	*016	*021	*025	*030	10.4
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935		081	086	090	095	100	104	109	114	118	123	31.2
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937		174	179	183	188	192	197	202	206	211	216	52.0
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939		267	271	276	280	285	290	294	299	304	308	72.8
940		313	317	322	327	331	336	340	345	350	354	83.2
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942		405	410	414	419	424	428	433	437	442	447	
943		451	456	460	465	470	474	479	483	488	493	
944		497	502	506	511	516	520	525	529	534	539	
945		543	548	552	557	562	566	571	575	580	585	
946		589	594	598	603	607	612	617	621	626	630	
947		635	640	644	649	653	658	663	667	672	676	
948		681	685	690	695	699	704	708	713	717	722	
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952		864	868	873	877	882	886	891	896	900	905	
953		909	914	918	923	928	932	937	941	946	950	
954		955	959	964	968	973	978	982	987	991	996	
955	98	000	005	009	014	019	023	028	032	037	041	
956		046	050	055	059	064	068	073	078	082	087	
957		091	096	100	105	109	114	118	123	127	132	
958		137	141	146	150	155	159	164	168	173	177	
959		182	186	191	195	200	204	209	214	218	223	
960		227	232	236	241	245	250	254	259	263	268	
961		272	277	281	286	290	295	299	304	308	313	
962		318	322	327	331	336	340	345	349	354	358	
963		363	367	372	376	381	385	390	394	399	403	
964		408	412	417	421	426	430	435	439	444	448	
965		453	457	462	466	471	475	480	484	489	493	
966		498	502	507	511	516	520	525	529	534	538	
967		543	547	552	556	561	565	570	574	579	583	
968		588	592	597	601	605	610	614	619	623	628	
969		632	637	641	646	650	655	659	664	668	673	
970		677	682	686	691	695	700	704	709	713	717	
971		722	726	731	735	740	744	749	753	758	762	
972		767	771	776	780	784	789	793	798	802	807	
973		811	816	820	825	829	834	838	843	847	851	
974		856	860	865	869	874	878	883	887	892	896	
975		900	905	909	914	918	923	927	932	936	941	
976		945	949	954	958	963	967	972	976	981	985	
977		989	994	998	*003	*007	*012	*016	*021	*025	*029	
978	99	034	038	043	047	052	056	061	065	069	074	
979		078	083	087	092	096	100	105	109	114	118	
980		123	127	131	136	140	145	149	154	158	162	
981		167	171	176	180	185	189	193	198	202	207	
982		211	216	220	224	229	233	238	242	247	251	
983		255	260	264	269	273	277	282	286	291	295	
984		300	304	308	313	317	322	326	330	335	339	
985		344	348	352	357	361	366	370	374	379	383	
986		388	392	396	401	405	410	414	419	423	427	
987		432	436	441	445	449	454	458	463	467	471	
988		476	480	484	489	493	498	502	506	511	515	
989		520	524	528	533	537	542	546	550	555	559	
990		564	568	572	577	581	585	590	594	599	603	
991		607	612	616	621	625	629	634	638	642	647	
992		651	656	660	664	669	673	677	682	686	691	
993		695	699	704	708	712	717	721	726	730	734	
994		739	743	747	752	756	760	765	769	774	778	
995		782	787	791	795	800	804	808	813	817	822	
996		826	830	835	839	843	848	852	856	861	865	
997		870	874	878	883	887	891	896	900	904	909	
998		913	917	922	926	930	935	939	944	948	952	
999		957	961	965	970	974	978	983	987	991	996	
N.	L.	0	1	2	3	4	5	6	7	8	9	PP.

5  
10.5  
21.0  
31.5  
42.0  
52.5  
63.0  
73.5  
84.0  
94.5

4  
10.4  
20.8  
31.2  
41.6  
52.0  
62.4  
72.8  
83.2  
93.6





**TABLE**  
**of**  
**LOGARITHMS**  
**of the**  
**Sine and Tangent**  
**Varying by**  
**Ten Seconds from  $0^{\circ}$  to  $3^{\circ}$**   
**and of the**  
**Cosine and Cotangent**  
**Varying by**  
**Ten Seconds from  $87^{\circ}$  to  $90^{\circ}$**

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Note. 1.—As an inspection of the following pages will show, tables of proportional parts for seconds are given for the part from  $1^{\circ}$  to  $3^{\circ}$  only. For calculations, closer than to 10 seconds, with angles between  $0^{\circ}$  and  $1^{\circ}$ , the columns headed "Sec." "S" and "T" on page 30 and 31 are provided. See page 28 for their application.

Note 2.—For angles between  $87^{\circ}$  and  $90^{\circ}$  read from bottom of page upward.

	0°	10°	20°	30°	40°	50°	60°	
0	.....	5.68557	5.98660	6.16270	6.28763	6.38454	6.46373	59
1	6.46373	6.53067	6.58866	6.63982	6.68557	6.72697	6.76476	58
2	6.76476	6.79952	6.83170	6.86167	6.88969	6.91602	6.94085	57
3	6.94085	6.96433	6.98660	7.00779	7.02800	7.04730	7.06579	56
4	7.06579	7.08351	7.10055	7.11694	7.13273	7.14797	7.16270	55
5	7.16270	7.17694	7.19073	7.20409	7.21705	7.22964	7.24188	54
6	7.24188	7.25378	7.26536	7.27664	7.28763	7.29836	7.30882	53
7	7.30882	7.31904	7.32903	7.33879	7.34833	7.35767	7.36682	52
8	7.36682	7.37577	7.38454	7.39314	7.40158	7.40985	7.41797	51
9	7.41797	7.42594	7.43376	7.44145	7.44900	7.45643	7.46373	50
10	7.46373	7.47090	7.47797	7.48491	7.49175	7.49849	7.50512	49
11	7.50512	7.51165	7.51808	7.52442	7.53067	7.53683	7.54291	48
12	7.54291	7.54890	7.55481	7.56064	7.56639	7.57206	7.57767	47
13	7.57767	7.58320	7.58866	7.59404	7.59933	7.60455	7.60968	46
14	7.60968	7.61495	7.62017	7.62530	7.63036	7.63536	7.63982	45
15	7.63982	7.64461	7.64936	7.65406	7.65870	7.66330	7.66784	44
16	7.66784	7.67235	7.67680	7.68121	7.68557	7.68989	7.69417	43
17	7.69417	7.69841	7.70261	7.70676	7.71088	7.71496	7.71900	42
18	7.71900	7.72300	7.72697	7.73090	7.73479	7.73865	7.74248	41
19	7.74248	7.74627	7.75003	7.75376	7.75745	7.76112	7.76475	40
20	7.76475	7.76836	7.77193	7.77548	7.77899	7.78248	7.78594	39
21	7.78594	7.78938	7.79278	7.79616	7.79952	7.80289	7.80615	38
22	7.80615	7.80942	7.81268	7.81591	7.81911	7.82229	7.82545	37
23	7.82545	7.82859	7.83170	7.83479	7.83786	7.84091	7.84393	36
24	7.84393	7.84694	7.84992	7.85289	7.85583	7.85876	7.86166	35
25	7.86166	7.86455	7.86741	7.87026	7.87309	7.87590	7.87870	34
26	7.87870	7.88147	7.88423	7.88697	7.88969	7.89240	7.89509	33
27	7.89509	7.89776	7.90041	7.90305	7.90568	7.90829	7.91088	32
28	7.91088	7.91346	7.91602	7.91857	7.92110	7.92362	7.92612	31
29	7.92612	7.92861	7.93108	7.93354	7.93599	7.93842	7.94084	30
30	7.94084	7.94325	7.94564	7.94802	7.95039	7.95274	7.95508	29
31	7.95508	7.95741	7.95973	7.96203	7.96432	7.96660	7.96887	28
32	7.96887	7.97113	7.97337	7.97560	7.97782	7.98003	7.98223	27
33	7.98223	7.98444	7.98660	7.98876	7.99092	7.99306	7.99520	26
34	7.99520	7.99732	7.99943	8.00154	8.00363	8.00571	8.00779	25
35	8.00779	8.00985	8.01190	8.01395	8.01598	8.01801	8.02002	24
36	8.02002	8.02203	8.02402	8.02601	8.02799	8.02996	8.03192	23
37	8.03192	8.03387	8.03581	8.03775	8.03967	8.04159	8.04350	22
38	8.04350	8.04540	8.04729	8.04918	8.05105	8.05292	8.05478	21
39	8.05478	8.05663	8.05848	8.06031	8.06214	8.06396	8.06578	20
40	8.06578	8.06758	8.06938	8.07117	8.07295	8.07473	8.07650	19
41	8.07650	8.07826	8.08003	8.08176	8.08350	8.08524	8.08696	18
42	8.08696	8.08868	8.09040	8.09210	8.09380	8.09550	8.09718	17
43	8.09718	8.09888	8.10054	8.10220	8.10384	8.10548	8.10711	16
44	8.10711	8.10881	8.11044	8.11207	8.11370	8.11531	8.11693	15
45	8.11693	8.11853	8.12013	8.12172	8.12331	8.12489	8.12647	14
46	8.12647	8.12804	8.12961	8.13117	8.13272	8.13427	8.13581	13
47	8.13581	8.13735	8.13888	8.14041	8.14193	8.14344	8.14495	12
48	8.14495	8.14646	8.14796	8.14945	8.15094	8.15243	8.15391	11
49	8.15391	8.15538	8.15685	8.15832	8.15978	8.16123	8.16268	10
50	8.16268	8.16413	8.16557	8.16700	8.16843	8.16986	8.17128	9
51	8.17128	8.17270	8.17411	8.17552	8.17692	8.17832	8.17971	8
52	8.17971	8.18110	8.18249	8.18387	8.18524	8.18662	8.18798	7
53	8.18798	8.18935	8.19071	8.19206	8.19341	8.19476	8.19610	6
54	8.19610	8.19744	8.19877	8.20010	8.20143	8.20275	8.20407	5
55	8.20407	8.20538	8.20669	8.20800	8.20930	8.21060	8.21189	4
56	8.21189	8.21319	8.21447	8.21576	8.21703	8.21831	8.21958	3
57	8.21958	8.22085	8.22211	8.22337	8.22463	8.22588	8.22713	2
58	8.22713	8.22838	8.22962	8.23086	8.23210	8.23333	8.23456	1
59	8.23456	8.23578	8.23700	8.23822	8.23944	8.24065	8.24186	0
	60°	50°	40°	30°	20°	10°	0°	

# L. Tang. 0°

	0°	10°	20°	30°	40°	50°	60°
0	.....	5.68557	5.98680	6.16270	6.28768	6.38454	6.46373
1	6.46373	6.53067	6.58966	6.63982	6.68557	6.72697	6.76476
2	6.76476	6.79952	6.83170	6.86167	6.88969	6.91602	6.94085
3	6.94085	6.96433	6.98680	7.00779	7.02800	7.04730	7.06579
4	7.06579	7.08352	7.10085	7.11694	7.13273	7.14797	7.16270
5	7.16270	7.17694	7.19073	7.20409	7.21705	7.22964	7.24188
6	7.24188	7.25378	7.26536	7.27664	7.28764	7.29836	7.30882
7	7.30882	7.31904	7.32903	7.33879	7.34833	7.35767	7.36682
8	7.36682	7.37577	7.38455	7.39315	7.40158	7.40985	7.41797
9	7.41797	7.42594	7.43376	7.44145	7.44900	7.45643	7.46373
10	7.46373	7.47091	7.47797	7.48492	7.49176	7.49849	7.50512
11	7.50512	7.51165	7.51809	7.52443	7.53067	7.53683	7.54291
12	7.54291	7.54890	7.55481	7.56064	7.56639	7.57207	7.57767
13	7.57767	7.58320	7.58867	7.59406	7.59939	7.60466	7.60986
14	7.60986	7.61500	7.62008	7.62510	7.63007	7.63497	7.63982
15	7.63982	7.64462	7.64937	7.65406	7.65871	7.66330	7.66785
16	7.66785	7.67235	7.67680	7.68121	7.68558	7.68990	7.69418
17	7.69418	7.69842	7.70261	7.70677	7.71088	7.71496	7.71900
18	7.71900	7.72301	7.72697	7.73090	7.73480	7.73866	7.74248
19	7.74248	7.74628	7.75004	7.75377	7.75746	7.76113	7.76476
20	7.76476	7.76837	7.77194	7.77549	7.77900	7.78249	7.78595
21	7.78595	7.78938	7.79279	7.79617	7.79952	7.80285	7.80615
22	7.80615	7.80943	7.81269	7.81591	7.81912	7.82230	7.82546
23	7.82546	7.82860	7.83171	7.83480	7.83787	7.84092	7.84394
24	7.84394	7.84698	7.84993	7.85290	7.85584	7.85877	7.86167
25	7.86167	7.86456	7.86743	7.87027	7.87310	7.87591	7.87871
26	7.87871	7.88148	7.88424	7.88698	7.88970	7.89241	7.89510
27	7.89510	7.89777	7.90043	7.90307	7.90569	7.90830	7.91089
28	7.91089	7.91347	7.91603	7.91856	7.92111	7.92363	7.92613
29	7.92613	7.92862	7.93110	7.93356	7.93601	7.93844	7.94086
30	7.94086	7.94326	7.94566	7.94804	7.95040	7.95276	7.95510
31	7.95510	7.95743	7.95974	7.96205	7.96434	7.96662	7.96889
32	7.96889	7.97114	7.97339	7.97562	7.97784	7.98005	7.98225
33	7.98225	7.98444	7.98662	7.98878	7.99094	7.99308	7.99522
34	7.99522	7.99734	7.99946	8.00156	8.00365	8.00574	8.00781
35	8.00781	8.00987	8.01193	8.01397	8.01600	8.01803	8.02004
36	8.02004	8.02205	8.02405	8.02604	8.02801	8.02998	8.03194
37	8.03194	8.03390	8.03584	8.03777	8.03970	8.04162	8.04353
38	8.04353	8.04543	8.04732	8.04921	8.05108	8.05295	8.05481
39	8.05481	8.05666	8.05851	8.06034	8.06217	8.06399	8.06581
40	8.06581	8.06761	8.06941	8.07120	8.07298	8.07476	8.07653
41	8.07653	8.07829	8.08005	8.08180	8.08354	8.08527	8.08700
42	8.08700	8.08872	8.09043	8.09214	8.09384	8.09553	8.09722
43	8.09722	8.09890	8.10057	8.10224	8.10390	8.10555	8.10720
44	8.10720	8.10884	8.11048	8.11211	8.11373	8.11535	8.11696
45	8.11696	8.11857	8.12017	8.12176	8.12335	8.12493	8.12651
46	8.12651	8.12808	8.12965	8.13121	8.13276	8.13431	8.13585
47	8.13585	8.13739	8.13892	8.14045	8.14197	8.14348	8.14500
48	8.14500	8.14650	8.14800	8.14950	8.15099	8.15247	8.15395
49	8.15395	8.15543	8.15690	8.15836	8.15982	8.16128	8.16273
50	8.16273	8.16417	8.16561	8.16705	8.16848	8.16991	8.17133
51	8.17133	8.17275	8.17416	8.17557	8.17697	8.17837	8.17976
52	8.17976	8.18115	8.18254	8.18392	8.18530	8.18667	8.18804
53	8.18804	8.18940	8.19078	8.19211	8.19347	8.19481	8.19616
54	8.19616	8.19749	8.19883	8.20016	8.20149	8.20281	8.20413
55	8.20413	8.20544	8.20675	8.20806	8.20936	8.21066	8.21195
56	8.21195	8.21324	8.21453	8.21581	8.21709	8.21837	8.21964
57	8.21964	8.22091	8.22217	8.22343	8.22469	8.22595	8.22720
58	8.22720	8.22844	8.22968	8.23092	8.23216	8.23339	8.23462
59	8.23462	8.23585	8.23707	8.23829	8.23950	8.24071	8.24192
	60°	50°	40°	30°	20°	10°	0°

# L. Cotang. 89°

	0°	10°	20°	30°	40°	50°	60°	d.	PP.					
0	8.24 186	306	436	546	666	785	903	50 129						
1	908	*022	*140	*258	*375	*493	*609	58 118	1	120	119	118	117	116
2	8.25 609	726	842	958	*074	*189	*304	57 116	2	240	238	236	234	232
3	8.26 304	419	538	648	761	875	988	56 114	3	360	357	354	351	348
4	988	*101	*214	*326	*438	*550	*661	55 112	4	480	476	472	468	464
5	8.27 661	773	883	994	*104	*215	*324	54 110	5	600	595	590	585	580
6	8.28 324	434	543	652	761	869	977	53 109	6	720	714	708	702	696
7	977	*085	*198	*300	*407	*514	*621	52 107	7	840	833	826	819	812
8	8.29 621	727	833	939	*044	*150	*255	51 106	8	960	952	944	936	928
9	8.30 255	359	464	568	672	776	879	50 104	9	1080	1071	1062	1053	1044
10	879	983	*086	*188	*291	*393	*495	49 103						
11	8.31 495	597	699	800	901	*093	*193	48 101	1	115	114	113	112	111
12	8.32 108	203	308	403	508	602	702	47 100	2	230	228	226	224	222
13	702	801	899	998	*096	*195	*292	46 98	3	345	342	339	336	333
14	8.33 292	390	488	585	682	779	875	45 97	4	460	456	452	448	444
15	876	972	*068	*164	*260	*355	*450	44 96	5	575	570	565	560	555
16	8.34 450	546	640	735	830	924	*018	43 95	6	690	684	678	672	666
17	8.35 018	112	206	299	392	485	578	42 93	7	805	798	791	784	777
18	578	671	764	856	948	*040	*131	41 92	8	920	912	904	896	888
19	8.36 131	223	314	405	496	587	678	40 91	9	1035	1026	1017	1008	999
20	678	768	858	948	*038	*128	*217	39 90						
21	8.37 217	306	395	484	573	662	750	38 89	1	110	109	108	107	106
22	750	838	926	*014	*101	*189	*276	37 88	2	220	218	216	214	212
23	8.38 276	363	450	537	624	710	796	36 87	3	330	327	324	321	318
24	796	882	968	*064	*139	*225	*310	35 86	4	440	436	432	428	424
25	8.39 310	395	480	565	649	734	818	34 85	5	550	545	540	535	530
26	818	902	986	*070	*153	*237	*320	33 84	6	660	654	648	642	636
27	8.40 320	403	486	569	651	734	816	32 83	7	770	763	756	749	742
28	816	898	980	*063	*144	*225	*307	31 82	8	880	872	864	856	848
29	8.41 307	388	469	550	631	711	792	30 81	9	990	981	972	963	954
30	792	872	952	*032	*112	*192	*272	29 80						
31	8.42 272	351	430	510	589	667	746	28 79	1	105	104	103	102	101
32	746	825	903	982	*060	*138	*216	27 78	2	210	208	206	204	202
33	8.43 216	293	371	448	526	603	680	26 77	3	315	312	309	306	303
34	680	757	834	910	987	*063	*139	25 76	4	420	416	412	408	404
35	8.44 139	216	292	367	443	519	594	24 75	5	525	520	515	510	505
36	594	669	745	820	895	969	*044	23 75	6	630	624	618	612	606
37	8.45 044	119	193	267	341	415	489	22 74	7	735	728	721	714	707
38	489	563	637	710	784	857	930	21 74	8	840	833	826	818	808
39	8.46 300	*003	*076	*149	*222	*294	*366	20 73	9	945	936	927	918	909
40	8.46 366	439	511	583	655	727	799	19 72						
41	799	870	942	*013	*084	*155	*226	18 71	1	100	99	98	97	96
42	8.47 226	297	368	439	509	580	650	17 71	2	200	198	196	194	192
43	650	720	790	860	930	*000	*069	16 70	3	300	297	294	291	288
44	8.48 069	139	208	278	347	416	485	15 69	4	400	396	392	388	384
45	485	554	622	691	760	828	896	14 68	5	500	495	490	485	480
46	8.49 304	372	439	506	574	641	708	13 68	6	600	594	588	582	576
47	708	775	842	908	975	*042	*108	12 67	7	700	693	686	679	672
48	8.50 108	174	241	307	373	439	504	11 67	8	800	792	784	776	768
49	504	570	636	701	767	832	897	10 66	9	900	891	882	873	864
50								9 66						
51	8.51 287	351	416	480	544	609	673	8 65	1	95	94	93	92	91
52	673	737	801	864	928	992	*055	7 64	2	200	198	196	194	192
53	8.52 055	119	182	245	308	371	434	6 63	3	300	297	294	291	288
54	434	497	560	623	685	748	810	5 63	4	400	396	392	388	384
55	810	872	935	997	*059	*121	*183	4 63	5	500	495	490	485	480
56	8.53 183	245	306	368	429	491	552	3 62	6	600	594	588	582	576
57	552	614	675	736	797	858	919	2 61	7	700	693	686	679	672
58	919	979	*040	*101	*161	*223	*282	1 61	8	800	792	784	776	768
59								0 60	9	900	891	882	873	864
	60°	50°	40°	30°	20°	10°	0°	d.	PP.					

	0°	10°	20°	30°	40°	50°	60°	d.	PP.					
0	8.24 192	313	433	553	672	791	910	59 120		90	89	88	87	86
1	910	*029	*147	*265	*382	*500	*616	58 118	1	9.0	8.9	8.8	8.7	8.6
2	8.25 616	733	849	965	*081	*196	*312	57 116	2	18.0	17.8	17.6	17.4	17.2
3	8.26 312	426	541	655	769	882	996	56 114	3	27.0	26.7	26.4	26.1	25.8
4	996	*109	*221	*334	*446	*558	*669	55 112	4	36.0	35.6	35.3	34.9	34.4
5	8.27 669	780	891	*003	*112	*223	*332	54 110	5	45.0	44.5	44.0	43.5	43.0
6	8.28 332	442	551	660	769	877	986	53 109	6	54.0	53.4	52.8	52.2	51.6
7	986	*094	*201	*309	*416	*523	*629	52 107	7	63.0	62.5	61.8	60.9	60.2
8	8.29 629	736	842	947	*053	*158	*263	51 106	8	72.0	71.2	70.4	69.6	68.8
9	8.30 263	368	473	577	681	785	888	50 104	9	81.0	80.1	79.2	78.3	77.4
10	888	992	*096	*198	*300	*403	*505	49 103		85	84	83	82	81
11	8.31 505	606	708	809	911	*012	*112	48 101	1	8.5	8.4	8.3	8.2	8.1
12	8.32 112	213	313	413	513	612	711	47 100	2	17.0	16.8	16.6	16.4	16.2
13	711	810	909	*008	*108	*206	*302	46 98	3	25.5	25.2	24.9	24.6	24.3
14	8.33 302	400	498	595	692	789	886	45 97	4	34.0	33.6	33.2	32.8	32.4
15	886	982	*078	*174	*270	*366	*461	44 96	5	42.5	42.0	41.5	41.0	40.5
16	8.34 461	556	651	746	840	935	*039	43 95	6	51.0	50.4	49.8	49.2	48.6
17	8.35 029	123	217	310	403	497	590	42 94	7	59.5	58.8	58.1	57.4	56.7
18	590	682	775	867	959	*051	*143	41 92	8	68.0	67.2	66.4	65.6	64.8
19	8.36 143	235	326	417	508	599	689	40 91	9	76.5	75.6	74.7	73.8	72.9
20	689	780	870	960	*050	*140	*230	39 90		80	79	78	77	76
21	8.37 229	318	406	497	585	674	762	38 89	1	8.0	7.9	7.8	7.7	7.6
22	768	850	938	*026	*114	*202	*289	37 88	2	16.0	15.8	15.6	15.4	15.2
23	8.38 289	376	463	550	636	723	809	36 87	3	24.0	23.7	23.4	23.1	22.8
24	809	895	981	*067	*153	*238	*323	35 86	4	32.0	31.6	31.2	30.8	30.4
25	8.39 323	408	493	578	663	747	832	34 85	5	40.0	39.5	39.0	38.5	38.0
26	832	916	*000	*083	*167	*250	*334	33 84	6	48.0	47.4	46.8	46.2	45.6
27	8.40 334	417	500	583	665	748	830	32 83	7	56.0	55.5	54.8	53.9	53.2
28	830	913	995	*077	*158	*240	*321	31 82	8	64.0	63.3	62.4	61.6	60.8
29	8.41 321	403	484	565	646	726	807	30 81	9	72.0	71.1	70.2	69.3	68.4
30	807	887	967	*048	*127	*207	*287	29 80		75	74	73	72	71
31	8.42 287	366	446	525	604	683	762	28 79	1	7.5	7.4	7.3	7.2	7.1
32	762	840	919	997	*075	*154	*232	27 78	2	15.0	14.8	14.6	14.4	14.2
33	8.43 232	309	387	464	542	619	696	26 77	3	22.5	22.2	21.9	21.6	21.3
34	696	773	850	927	*003	*080	*156	25 77	4	30.0	29.6	29.2	28.8	28.4
35	8.44 156	232	308	384	460	536	611	24 76	5	37.5	37.0	36.5	36.0	35.5
36	611	686	762	837	912	987	*061	23 75	6	45.0	44.4	43.8	43.2	42.6
37	8.45 061	136	210	285	359	433	507	22 74	7	52.5	51.8	51.1	50.4	49.7
38	507	581	655	728	802	875	948	21 74	8	60.0	59.2	58.4	57.6	56.8
39	948	*021	*094	*167	*240	*312	*385	20 73	9	67.5	66.6	65.7	64.8	63.9
40	8.46 385	457	529	602	674	745	817	19 72		70	69	68	67	66
41	817	889	960	*032	*103	*174	*245	18 71	1	7.0	6.9	6.8	6.7	6.6
42	8.47 245	316	387	458	528	599	669	17 71	2	14.0	13.8	13.6	13.4	13.2
43	669	740	810	880	950	*020	*089	16 70	3	21.0	20.7	20.4	20.1	19.8
44	8.48 089	159	228	298	367	436	505	15 69	4	28.0	27.6	27.2	26.8	26.4
45	505	574	643	711	780	849	917	14 69	5	35.0	34.5	34.0	33.5	33.0
46	917	985	*053	*121	*189	*257	*325	13 68	6	42.0	41.4	40.8	40.2	39.6
47	8.49 325	393	460	528	595	662	729	12 67	7	49.0	48.3	47.6	46.9	46.2
48	729	796	863	930	997	*063	*130	11 67	8	56.0	55.2	54.4	53.6	52.8
49	8.50 130	196	263	329	395	461	527	10 66	9	63.0	62.1	61.2	60.3	59.4
50	527	593	658	724	789	855	920	9 66		65	64	63	62	61
51	920	985	*050	*115	*180	*245	*310	8 65	1	6.5	6.4	6.3	6.2	6.1
52	8.51 310	374	439	503	568	632	696	7 64	2	13.0	12.8	12.6	12.4	12.2
53	696	760	824	888	952	*016	*079	6 64	3	19.5	19.2	18.9	18.6	18.3
54	8.52 079	143	206	269	332	396	459	5 63	4	26.0	25.6	25.2	24.8	24.4
55	459	523	584	647	710	772	835	4 63	5	32.5	32.0	31.5	31.0	30.5
56	835	897	960	*022	*084	*146	*208	3 62	6	39.0	38.4	37.8	37.2	36.6
57	8.53 208	270	332	393	455	516	578	2 62	7	45.5	44.8	44.1	43.4	42.7
58	578	639	700	762	823	884	945	1 61	8	52.0	51.2	50.4	49.6	48.8
59	945	*005	*066	*127	*187	*248	*308	0 60	9	58.5	57.6	56.7	55.8	54.9
	60°	50°	40°	30°	20°	10°	0°	d.	PP					

	0°	10°	20°	30°	40°	50°	60°	d.	PP.
0	8.54 282	342	402	462	522	582	642	50 60	61 60 50 53
1	642	702	762	821	881	940	999	58 60	1 6.1 6.0 5.9 5.8
2	999	*059	*118	*177	*236	*295	*354	57 59	2 12.2 12.0 11.8 11.6
3	8.55 354	413	471	530	589	647	705	55 58	3 18.3 18.0 17.7 17.4
4	705	764	822	880	938	996	*054	55 58	4 24.4 24.0 23.6 23.2
5	8.56 054	112	170	227	285	342	400	54 58	5 30.5 30.0 29.5 29.0
6	400	457	515	572	629	686	743	53 57	6 36.6 36.0 35.4 34.8
7	743	809	867	914	970	*027	*084	52 57	7 42.7 42.0 41.3 40.6
8	8.57 084	140	196	253	309	365	421	51 56	8 48.8 48.0 47.2 46.4
9	421	477	533	589	645	701	757	50 56	9 54.9 54.0 53.1 52.2
10	757	812	868	923	979	*034	*089	49 54	57 56 55 54
11	8.58 089	144	200	255	310	364	419	48 55	1 5.7 5.6 5.5 5.4
12	419	474	529	583	638	693	747	47 55	2 11.4 11.2 11.0 10.8
13	747	801	856	910	964	*018	*072	46 54	3 17.1 16.8 16.5 16.2
14	8.59 072	126	180	234	288	341	395	45 54	4 22.8 22.4 22.0 21.6
15	395	448	502	555	609	662	715	44 54	5 28.5 28.0 27.5 27.0
16	715	768	821	874	927	980	*033	43 53	6 34.2 33.6 33.0 32.4
17	8.60 033	086	139	191	244	296	349	42 53	7 39.9 39.2 38.5 37.8
18	349	401	454	506	558	610	662	41 52	8 45.6 44.8 44.0 43.2
19	662	714	766	818	870	922	973	40 52	9 51.3 50.4 49.5 48.6
20	973	*025	*077	*128	*180	*231	*282	39 52	53 52 51 50
21	8.61 282	334	385	436	487	538	589	38 51	1 5.3 5.2 5.1 5.0
22	589	640	691	742	792	843	894	37 51	2 10.6 10.4 10.2 10.0
23	894	944	995	*045	*096	*146	*196	36 50	3 15.9 15.6 15.3 15.0
24	8.62 196	246	297	347	397	447	497	35 50	4 21.2 20.8 20.4 20.0
25	497	546	596	646	696	745	795	34 50	5 26.5 26.0 25.5 25.0
26	795	844	894	943	993	*042	*091	33 50	6 31.8 31.2 30.6 30.0
27	8.63 091	140	189	238	288	336	385	32 49	7 37.1 36.4 35.7 35.0
28	385	434	483	532	580	629	678	31 49	8 42.4 41.6 40.8 40.0
29	678	726	775	823	871	920	968	30 48	9 47.7 46.8 45.9 45.0
30	968	*016	*064	*112	*160	*208	*256	29 48	49 48 47 46
31	8.64 256	304	352	400	448	495	543	28 48	1 4.9 4.8 4.7 4.6
32	543	590	638	685	733	780	827	27 48	2 9.9 9.6 9.4 9.2
33	827	875	922	969	*016	*063	*110	26 47	3 14.7 14.4 14.1 13.8
34	8.65 110	157	204	251	298	344	391	25 47	4 19.6 19.2 18.8 18.4
35	391	438	484	531	577	624	670	24 47	5 24.5 24.0 23.5 23.0
36	670	717	763	809	855	901	947	23 46	6 29.4 28.8 28.2 27.6
37	947	994	*040	*085	*131	*177	*223	22 46	7 34.8 33.6 32.9 32.2
38	8.66 223	269	314	360	406	451	497	21 46	8 39.2 38.4 37.6 36.8
39	497	542	588	633	678	724	769	20 46	9 44.1 43.2 42.3 41.4
40	769	814	859	904	949	994	*039	19 45	45 44 43 42
41	8.67 039	084	129	174	219	263	308	18 45	1 4.5 4.4 4.3 4.2
42	308	353	397	442	486	531	575	17 45	2 9.0 8.8 8.6 8.4
43	575	619	664	708	752	796	841	16 44	3 13.5 13.2 12.9 12.6
44	841	885	929	973	*017	*060	*104	15 44	4 18.0 17.6 17.2 16.8
45	8.68 104	148	192	236	279	323	367	14 44	5 22.5 22.0 21.5 21.0
46	367	410	454	497	540	584	627	13 44	6 27.0 26.4 25.8 25.2
47	627	670	714	757	800	843	886	12 43	7 31.5 30.8 30.1 29.4
48	886	929	972	*015	*058	*101	*144	11 43	8 36.0 35.2 34.4 33.6
49	8.69 144	187	229	272	315	357	400	10 43	9 40.5 39.6 38.7 37.8
50	400	442	485	527	570	612	654	9 43	41 40
51	654	697	739	781	823	865	907	8 42	1 4.1 4.0
52	907	949	991	*033	*075	*117	*159	7 42	2 8.2 8.0
53	8.70 159	201	242	284	326	367	409	6 42	3 12.3 12.0
54	409	451	492	534	575	616	658	5 42	4 16.4 16.0
55	658	699	740	781	823	864	905	4 41	5 20.5 20.0
56	905	946	987	*028	*069	*110	*151	3 41	6 24.6 24.0
57	8.71 151	192	232	273	314	355	395	2 41	7 28.7 28.0
58	395	436	476	517	557	598	638	1 41	8 32.8 32.0
59	638	679	719	759	800	840	880	0 40	9 36.9 36.0
	60°	50°	40°	30°	20°	10°	0°	d.	PP.

	0°	10°	20°	30°	40°	50°	60°	d.	PP.
0	8.54 308	389	420	489	549	609	669	59	60
1	609	729	789	848	908	967	*027	58	60
2	8.55 027	086	145	205	264	323	382	57	59
3	382	441	499	558	617	675	734	56	59
4	734	792	850	909	967	*025	*083	55	58
5	8.56 083	141	199	256	314	372	429	54	58
6	429	487	544	601	659	716	773	53	57
7	773	830	887	944	*000	*057	*114	52	57
8	8.57 114	170	227	283	340	396	452	51	56
9	452	508	564	620	676	732	788	50	56
10	788	843	899	955	*010	*065	*121	49	56
11	8.58 121	176	231	286	341	396	451	48	55
12	451	506	561	616	670	725	779	47	55
13	779	834	888	943	997	*051	*106	46	54
14	8.59 105	159	213	267	321	375	428	45	54
15	428	482	536	589	642	696	749	44	54
16	749	802	856	909	962	*015	*068	43	53
17	8.60 068	121	173	226	279	331	384	42	53
18	384	436	489	541	593	646	698	41	52
19	698	750	802	854	906	958	*009	40	52
20	8.61 009	061	113	164	216	267	319	39	52
21	319	370	422	473	524	575	626	38	51
22	626	677	728	779	830	881	931	37	51
23	931	982	*033	*083	*134	*184	*234	36	50
24	8.62 234	285	335	385	436	485	535	35	50
25	535	585	635	685	735	784	834	34	50
26	834	884	933	983	*032	*081	*131	33	50
27	8.63 131	180	229	278	328	377	426	32	49
28	426	475	523	572	621	670	718	31	49
29	718	767	816	864	913	961	*009	30	48
30	8.64 009	058	106	154	202	250	298	29	48
31	298	346	394	442	490	538	585	28	48
32	585	633	681	728	776	823	870	27	48
33	870	918	965	*012	*060	*107	*154	26	47
34	8.65 154	201	248	295	342	388	435	25	47
35	435	482	529	575	622	668	715	24	47
36	715	761	808	854	900	947	993	23	46
37	993	*039	*085	*131	*177	*223	*269	22	46
38	8.66 269	315	361	406	452	498	543	21	46
39	543	589	634	680	725	771	816	20	46
40	816	861	906	952	997	*042	*087	19	45
41	8.67 087	132	177	222	267	312	356	18	45
42	356	401	446	490	535	579	624	17	45
43	624	668	713	757	801	845	890	16	44
44	890	934	978	*022	*066	*110	*154	15	44
45	8.68 154	198	242	286	330	373	417	14	44
46	417	461	504	548	592	635	678	13	44
47	678	722	765	808	852	895	938	12	43
48	938	981	*024	*067	*110	*153	*196	11	43
49	8.69 196	239	282	325	368	410	453	10	43
50	453	496	538	581	623	666	708	9	42
51	708	750	793	835	877	920	962	8	42
52	962	*004	*046	*088	*130	*172	*214	7	42
53	8.70 214	256	298	339	381	423	465	6	42
54	465	506	548	589	631	673	714	5	42
55	714	755	797	838	879	921	962	4	41
56	962	*008	*044	*085	*126	*167	*208	3	41
57	8.71 208	249	290	331	372	413	453	2	41
58	453	494	535	575	616	657	697	1	41
59	697	738	778	819	859	899	940	0	40
	60°	50°	40°	30°	20°	10°	0°	d.	PP.



## LOGARITHMIC FUNCTIONS OF ANGLES BETWEEN 0° AND 1° AND 89° AND 90°

In the preceding table, in which the logarithms of the sine and tangent of angles between 0° and 3° and those of the cosine and cotangent between 87° and 90° are tabulated by intervals of 10 seconds, proportional parts for single seconds are given only for angles between 1° and 3° and 87° and 89°. For calculations closer than to 10 seconds with angles between 0° and 1° and 89° and 90°, the first three columns on pages 30 and 31 are provided. The first of these columns headed Sec. gives the reductions from minutes to seconds of the values in the fourth column headed Min. The next two columns headed S and T contain the values in the formulas,

$$\log \sin X = \log X_s + S \quad (1) \qquad \log X_s = \log \sin X - S \quad (1a)$$

$$\log \tan X = \log X_s + T \quad (2) \qquad \log X_s = \log \tan X - T \quad (2a)$$

In these formulas,  $X$  is the angle under consideration and  $X_s$  is the same angle reduced to seconds.

The following examples will serve to illustrate the application of these formulas:

**EXAMPLE I.**—Find  $\log \sin 37' 43.6''$ .

**SOLUTION.**—To apply formula 1, substitute for  $X_s$  the number of seconds contained in  $37' 43.6''$  and for  $S$  the nearest value in the table corresponding to  $X$ . The reduction to seconds may be effected by multiplying  $37''$  by 60 and adding to the product  $43.6''$ . However, the product of  $37'' \times 60$  may be taken directly from the reduction table, in which, opposite the number 37, it is given as 2220. Therefore,  $X_s = 2220 + 43.6 = 2263.6$ . Then, from the Table of Logarithms of Common Numbers,  $\log 2263.6$  is taken out as 3.35480. The nearest angle for which the value of  $S$  is given in the table is  $38'$ , opposite which number the value of  $S$  is found as 4.68557. Therefore,  $\log X = 3.35480 + 4.68557 = 8.04037$ .

**EXAMPLE II.**—Find the angle  $X$  when it is known that the  $\log \tan X = 7.90551$ .

**SOLUTION.**—In this case, formula 2a must be employed to determine the number of seconds contained in the required angle. This formula contains  $T$ , the value of which depends on the angle  $X$ , which is as yet unknown. However, as the value of  $T$  changes inappreciably with small variations of  $X$ , it will be sufficient for this purpose to determine  $X$  approximately. This can be done by means of the table of logarithmic tangents. Referring to this table, it will be seen that the value of  $X$  (since  $\log \tan X = 7.90551$ ) is between  $27'$  and  $28'$ , for both of which values  $T = 4.68558$ . Substituting known values in formula 2a, it will be found that  $\log X_s = 7.90551 - 4.68558 = 3.21993 = \log 1659.3$ . Hence,  $X = 1659.3'' = 27' 39.3''$ .

Since  $\cos X = \sin (90^\circ - X)$  and  $\cot X = \tan (90^\circ - X)$ , calculations involving the logarithmic cosine and cotangent of angles between  $89^\circ$  and  $90^\circ$  may be effected by computing the logarithmic sine and tangent of the compliments of these angles by the method just explained.

**TABLE**  
**OF**  
**LOGARITHMS**  
**OF THE**  
**Sine, Cosine, Tangent and Cotangent**  
**FOR**  
**Each Minute of the Quadrant**  
**WITH**  
**Tables of Proportional Parts for Seconds**

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Note.—For angles between  $45^{\circ}$  and  $90^{\circ}$  read from right-hand page to left-hand page and from bottom of page upward, the latter being indicated by an arrow on the top of the last column of each page.

Sec.	S	T	Min.	Sine	d	Tang.	d	Cotang.	Cosine	↑
0	4.68557	4.68557	0	— ∞		— ∞		+ ∞	0.00000	60
60	4.68557	4.68557	1	6.46373	30103	6.46373	30103	3.53627	0.00000	59
120	4.68557	4.68557	2	6.76476	17609	6.76476	17609	3.23524	0.00000	58
180	4.68557	4.68557	3	6.94085	12494	6.94085	12494	3.05915	0.00000	57
240	4.68557	4.68558	4	7.06579	9621	7.06579	9621	2.93421	0.00000	56
300	4.68557	4.68558	5	7.16270	7918	7.16270	7918	2.83730	0.00000	55
360	4.68557	4.68558	6	7.24188	6694	7.24188	6694	2.75812	0.00000	54
420	4.68557	4.68558	7	7.30882	5800	7.30882	5800	2.69118	0.00000	53
480	4.68557	4.68558	8	7.36682	5115	7.36682	5115	2.63318	0.00000	52
540	4.68557	4.68558	9	7.41797	4576	7.41797	4576	2.58203	0.00000	51
600	4.68557	4.68558	10	7.46373	4139	7.46373	4139	2.53627	0.00000	50
660	4.68557	4.68558	11	7.50512	3779	7.50512	3779	2.49488	0.00000	49
720	4.68557	4.68558	12	7.54291	3476	7.54291	3476	2.45709	0.00000	48
780	4.68557	4.68558	13	7.57767	3218	7.57767	3218	2.42233	0.00000	47
840	4.68557	4.68558	14	7.60985	2997	7.60985	2996	2.39014	0.00000	46
900	4.68557	4.68558	15	7.63982	2802	7.63982	2803	2.36018	0.00000	45
960	4.68557	4.68558	16	7.66784	2633	7.66785	2633	2.33215	0.00000	44
1020	4.68557	4.68558	17	7.69417	2483	7.69418	2482	2.30582	9.99999	43
1080	4.68557	4.68558	18	7.71900	2348	7.71900	2348	2.28100	9.99999	42
1140	4.68557	4.68558	19	7.74248	2227	7.74248	2228	2.25752	9.99999	41
1200	4.68557	4.68558	20	7.76475	2119	7.76476	2119	2.23524	9.99999	40
1260	4.68557	4.68558	21	7.78594	2021	7.78595	2020	2.21405	9.99999	39
1320	4.68557	4.68558	22	7.80615	1930	7.80615	1931	2.19385	9.99999	38
1380	4.68557	4.68558	23	7.82545	1848	7.82546	1848	2.17454	9.99999	37
1440	4.68557	4.68558	24	7.84393	1773	7.84394	1773	2.15606	9.99999	36
1500	4.68557	4.68558	25	7.86166	1704	7.86167	1704	2.13833	9.99999	35
1560	4.68557	4.68558	26	7.87870	1639	7.87871	1639	2.12129	9.99999	34
1620	4.68557	4.68558	27	7.89509	1579	7.89510	1579	2.10490	9.99999	33
1680	4.68557	4.68558	28	7.91088	1524	7.91089	1524	2.08911	9.99999	32
1740	4.68557	4.68559	29	7.92612	1472	7.92613	1473	2.07387	9.99998	31
1800	4.68557	4.68559	30	7.94084		7.94086		2.05914	9.99998	30
Sec.	S	T		Cosine	d	Cotang.	d	Tang.	Sine	Min.

Sec.	S	T	Min.	Sine	d	Tang.	d	Cotang.	Cosine
1800	4.68557	4.68559	30	7.94084		7.94088		2.05914	9.99998
1800	4.68557	4.68559	31	7.95508	1424	7.95510	1424	2.04490	9.99998
1920	4.68557	4.68559	32	7.96887	1379	7.96889	1379	2.03111	9.99998
1980	4.68557	4.68559	33	7.98223	1336	7.98225	1336	2.01775	9.99998
2040	4.68557	4.68559	34	7.99520	1297	7.99522	1297	2.00478	9.99998
2100	4.68557	4.68559	35	8.00779	1259	8.00781	1259	1.99219	9.99998
2160	4.68557	4.68559	36	8.02002	1223	8.02004	1223	1.97996	9.99998
2220	4.68557	4.68559	37	8.03192	1190	8.03194	1190	1.96806	9.99997
2280	4.68557	4.68559	38	8.04350	1158	8.04353	1158	1.95647	9.99997
2340	4.68557	4.68559	39	8.05478	1128	8.05481	1128	1.94519	9.99997
2400	4.68557	4.68559	40	8.06578	1100	8.06581	1100	1.93419	9.99997
2400	4.68556	4.68560	41	8.07650	1072	8.07653	1072	1.92347	9.99997
2520	4.68556	4.68560	42	8.08696	1046	8.08700	1047	1.91300	9.99997
2580	4.68556	4.68560	43	8.09718	1022	8.09722	1022	1.90278	9.99997
2640	4.68556	4.68560	44	8.10717	999	8.10720	998	1.89280	9.99996
2700	4.68556	4.68560	45	8.11693	976	8.11696	976	1.88304	9.99996
2760	4.68556	4.68560	46	8.12647	954	8.12651	955	1.87349	9.99996
2820	4.68556	4.68560	47	8.13581	934	8.13585	934	1.86415	9.99996
2880	4.68556	4.68560	48	8.14495	914	8.14500	915	1.85500	9.99996
2940	4.68556	4.68560	49	8.15391	896	8.15395	895	1.84605	9.99996
3000	4.68556	4.68561	50	8.16268	877	8.16273	878	1.83727	9.99995
3060	4.68556	4.68561	51	8.17128	860	8.17133	860	1.82867	9.99995
3120	4.68556	4.68561	52	8.17971	843	8.17976	843	1.82024	9.99995
3180	4.68556	4.68561	53	8.18798	827	8.18804	828	1.81196	9.99995
3240	4.68556	4.68561	54	8.19610	812	8.19616	812	1.80384	9.99995
3300	4.68556	4.68561	55	8.20407	797	8.20413	797	1.79587	9.99994
3360	4.68556	4.68561	56	8.21189	782	8.21195	782	1.78805	9.99994
3420	4.68555	4.68561	57	8.21958	769	8.21964	769	1.78036	9.99994
3480	4.68555	4.68562	58	8.22713	755	8.22720	756	1.77280	9.99994
3540	4.68555	4.68562	59	8.23456	743	8.23462	742	1.76538	9.99994
3600	4.68555	4.68562	60	8.24186	730	8.24192	730	1.75808	9.99993
Sec.	S	T		Cosine	d	Cotang.	d	Tang.	Sine

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑
0	8.24186	717	8.24192	718	1.75808	9.99993	0	60
1	8.24903	706	8.24910	706	1.75090	9.99993	0	59
2	8.25609	695	8.25616	696	1.74384	9.99993	0	58
3	8.26304	684	8.26312	684	1.73688	9.99993	1	57
4	8.26988	673	8.26996	673	1.73004	9.99992	0	56
5	8.27661	663	8.27669	663	1.72331	9.99992	0	55
6	8.28324	653	8.28332	654	1.71668	9.99992	0	54
7	8.28977	644	8.28986	643	1.71014	9.99992	0	53
8	8.29621	634	8.29629	634	1.70371	9.99992	1	52
9	8.30255	624	8.30263	625	1.69737	9.99991	0	51
10	8.30879	616	8.30888	617	1.69112	9.99991	0	50
11	8.31495	608	8.31505	607	1.68495	9.99991	1	49
12	8.32103	599	8.32112	599	1.67888	9.99990	0	48
13	8.32702	590	8.32711	591	1.67289	9.99990	0	47
14	8.33292	583	8.33302	584	1.66698	9.99990	0	46
15	8.33875	575	8.33886	575	1.66114	9.99990	1	45
16	8.34450	568	8.34461	568	1.65539	9.99989	0	44
17	8.35018	560	8.35029	561	1.64971	9.99989	0	43
18	8.35578	553	8.35590	553	1.64410	9.99989	0	42
19	8.36131	547	8.36143	546	1.63857	9.99989	1	41
20	8.36678	539	8.36689	540	1.63311	9.99988	0	40
21	8.37217	533	8.37229	533	1.62771	9.99988	0	39
22	8.37750	526	8.37762	527	1.62238	9.99988	1	38
23	8.38276	520	8.38289	520	1.61711	9.99987	0	37
24	8.38796	514	8.38809	514	1.61191	9.99987	0	36
25	8.39310	508	8.39323	509	1.60677	9.99987	1	35
26	8.39818	502	8.39832	502	1.60168	9.99986	0	34
27	8.40320	496	8.40334	496	1.59666	9.99986	0	33
28	8.40816	491	8.40830	491	1.59170	9.99986	1	32
29	8.41307	485	8.41321	486	1.58679	9.99985	0	31
30	8.41792	480	8.41807	480	1.58193	9.99985	0	30
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑
<b>30</b>	<b>8.41792</b>	480	<b>8.41807</b>	480	<b>1.58193</b>	<b>9.99985</b>	0	<b>30</b>
<b>31</b>	<b>8.42272</b>	474	<b>8.42287</b>	475	<b>1.57713</b>	<b>9.99985</b>	1	<b>29</b>
<b>32</b>	<b>8.42746</b>	470	<b>8.42762</b>	470	<b>1.57238</b>	<b>9.99984</b>	0	<b>28</b>
<b>33</b>	<b>8.43216</b>	464	<b>8.43232</b>	464	<b>1.56768</b>	<b>9.99984</b>	0	<b>27</b>
<b>34</b>	<b>8.43680</b>	459	<b>8.43696</b>	460	<b>1.56304</b>	<b>9.99984</b>	1	<b>26</b>
<b>35</b>	<b>8.44139</b>	455	<b>8.44156</b>	455	<b>1.55844</b>	<b>9.99983</b>	0	<b>25</b>
<b>36</b>	<b>8.44594</b>	450	<b>8.44611</b>	450	<b>1.55389</b>	<b>9.99983</b>	0	<b>24</b>
<b>37</b>	<b>8.45044</b>	445	<b>8.45061</b>	446	<b>1.54939</b>	<b>9.99983</b>	1	<b>23</b>
<b>38</b>	<b>8.45489</b>	441	<b>8.45507</b>	441	<b>1.54493</b>	<b>9.99982</b>	0	<b>22</b>
<b>39</b>	<b>8.45930</b>	436	<b>8.45948</b>	437	<b>1.54052</b>	<b>9.99982</b>	0	<b>21</b>
<b>40</b>	<b>8.46366</b>	432	<b>8.46385</b>	432	<b>1.53615</b>	<b>9.99982</b>	1	<b>20</b>
<b>41</b>	<b>8.46799</b>	427	<b>8.46817</b>	428	<b>1.53183</b>	<b>9.99981</b>	0	<b>19</b>
<b>42</b>	<b>8.47226</b>	424	<b>8.47245</b>	424	<b>1.52755</b>	<b>9.99981</b>	0	<b>18</b>
<b>43</b>	<b>8.47650</b>	419	<b>8.47669</b>	420	<b>1.52331</b>	<b>9.99981</b>	1	<b>17</b>
<b>44</b>	<b>8.48069</b>	416	<b>8.48089</b>	416	<b>1.51911</b>	<b>9.99980</b>	0	<b>16</b>
<b>45</b>	<b>8.48485</b>	411	<b>8.48505</b>	412	<b>1.51495</b>	<b>9.99980</b>	1	<b>15</b>
<b>46</b>	<b>8.48896</b>	408	<b>8.48917</b>	408	<b>1.51083</b>	<b>9.99979</b>	0	<b>14</b>
<b>47</b>	<b>8.49304</b>	404	<b>8.49325</b>	404	<b>1.50675</b>	<b>9.99979</b>	0	<b>13</b>
<b>48</b>	<b>8.49708</b>	400	<b>8.49729</b>	401	<b>1.50271</b>	<b>9.99979</b>	1	<b>12</b>
<b>49</b>	<b>8.50108</b>	396	<b>8.50130</b>	397	<b>1.49870</b>	<b>9.99978</b>	0	<b>11</b>
<b>50</b>	<b>8.50504</b>	392	<b>8.50527</b>	398	<b>1.49473</b>	<b>9.99978</b>	1	<b>10</b>
<b>51</b>	<b>8.50897</b>	390	<b>8.50920</b>	390	<b>1.49080</b>	<b>9.99977</b>	0	<b>9</b>
<b>52</b>	<b>8.51287</b>	386	<b>8.51310</b>	386	<b>1.48690</b>	<b>9.99977</b>	0	<b>8</b>
<b>53</b>	<b>8.51673</b>	382	<b>8.51696</b>	383	<b>1.48304</b>	<b>9.99977</b>	1	<b>7</b>
<b>54</b>	<b>8.52055</b>	379	<b>8.52079</b>	380	<b>1.47921</b>	<b>9.99976</b>	0	<b>6</b>
<b>55</b>	<b>8.52434</b>	376	<b>8.52459</b>	376	<b>1.47541</b>	<b>9.99976</b>	1	<b>5</b>
<b>56</b>	<b>8.52810</b>	373	<b>8.52835</b>	373	<b>1.47165</b>	<b>9.99975</b>	0	<b>4</b>
<b>57</b>	<b>8.53183</b>	369	<b>8.53208</b>	370	<b>1.46792</b>	<b>9.99975</b>	1	<b>3</b>
<b>58</b>	<b>8.53552</b>	367	<b>8.53578</b>	367	<b>1.46422</b>	<b>9.99974</b>	0	<b>2</b>
<b>59</b>	<b>8.53919</b>	363	<b>8.53945</b>	363	<b>1.46055</b>	<b>9.99974</b>	0	<b>1</b>
<b>60</b>	<b>8.54282</b>	360	<b>8.54308</b>	361	<b>1.45692</b>	<b>9.99974</b>	1	<b>0</b>
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑
0	8.54282		8.54308		1.45692	9.99974		60
1	8.54642	360	8.54669	361	1.45331	9.99973	1	59
2	8.54999	357	8.55027	358	1.44973	9.99973	0	58
3	8.55354	355	8.55382	355	1.44618	9.99972	1	57
4	8.55705	351	8.55734	352	1.44266	9.99972	0	56
		349		349			1	
5	8.56054		8.56083		1.43917	9.99971		55
		346		346			0	
6	8.56400	343	8.56429	344	1.43571	9.99971	1	54
7	8.56743	341	8.56773	341	1.43227	9.99970	0	53
8	8.57084	337	8.57114	338	1.42886	9.99970	1	52
9	8.57421	336	8.57452	336	1.42548	9.99969	0	51
		332		333			1	
10	8.57757		8.57788		1.42212	9.99969		50
		330		330			0	
11	8.58089	328	8.58121	328	1.41879	9.99968	1	49
12	8.58419	325	8.58451	326	1.41549	9.99968	0	48
13	8.58747	323	8.58779	323	1.41221	9.99967	1	47
14	8.59072	320	8.59105	321	1.40895	9.99967	0	46
		318		319			1	
15	8.59395		8.59428		1.40572	9.99967		45
		316		316			0	
16	8.59715	313	8.59749	314	1.40251	9.99966	1	44
17	8.60033	311	8.60068	311	1.39932	9.99966	0	43
18	8.60349	309	8.60384	310	1.39616	9.99965	1	42
19	8.60662	307	8.60698	307	1.39302	9.99964	0	41
		305		305			1	
20	8.60973		8.61009		1.38991	9.99964		40
		302		303			0	
21	8.61282	301	8.61319	301	1.38681	9.99963	1	39
22	8.61589	298	8.61626	299	1.38374	9.99963	0	38
23	8.61894	296	8.61931	297	1.38069	9.99962	1	37
24	8.62196	294	8.62234	295	1.37766	9.99962	0	36
		293		292			1	
25	8.62497		8.62535		1.37465	9.99961		35
		290		291			0	
26	8.62795	288	8.62834	289	1.37166	9.99961	1	34
27	8.63091	286	8.63131	287	1.36869	9.99960	0	33
28	8.63385	284	8.63426	285	1.36574	9.99960	1	32
29	8.63678	282	8.63718	282	1.36282	9.99959	0	31
		280		281			1	
30	8.63968		8.64009		1.35991	9.99959		30
		288		289			0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑
30	8.63988		8.64009		1.35991	9.99959		30
31	8.64256	288	8.64298	289	1.35702	9.99958	1	29
32	8.64543	287	8.64585	287	1.35415	9.99958	0	28
33	8.64827	284	8.64870	285	1.35130	9.99957	1	27
34	8.65110	283	8.65154	284	1.34846	9.99956	1	26
35	8.65391	281	8.65435	281	1.34565	9.99956	0	25
36	8.65670	279	8.65715	280	1.34285	9.99955	1	24
37	8.65947	277	8.65993	278	1.34007	9.99955	0	23
38	8.66223	276	8.66269	276	1.33731	9.99954	1	22
39	8.66497	274	8.66543	274	1.33457	9.99954	0	21
40	8.66769	272	8.66816	273	1.33184	9.99953	1	20
41	8.67039	270	8.67087	271	1.32913	9.99952	1	19
42	8.67308	269	8.67356	269	1.32644	9.99952	0	18
43	8.67575	267	8.67624	268	1.32376	9.99951	1	17
44	8.67841	266	8.67890	266	1.32110	9.99951	0	16
45	8.68104	263	8.68154	264	1.31846	9.99950	1	15
46	8.68367	263	8.68417	263	1.31583	9.99949	1	14
47	8.68627	260	8.68678	261	1.31322	9.99949	0	13
48	8.68886	259	8.68938	260	1.31062	9.99948	1	12
49	8.69144	258	8.69196	258	1.30804	9.99948	0	11
50	8.69400	256	8.69453	257	1.30547	9.99947	1	10
51	8.69654	254	8.69708	255	1.30292	9.99946	1	9
52	8.69907	253	8.69962	254	1.30038	9.99946	0	8
53	8.70159	252	8.70214	252	1.29786	9.99945	1	7
54	8.70409	250	8.70465	251	1.29535	9.99944	1	6
55	8.70658	249	8.70714	249	1.29286	9.99944	0	5
56	8.70905	247	8.70962	248	1.29038	9.99943	1	4
57	8.71151	246	8.71208	246	1.28792	9.99942	1	3
58	8.71395	244	8.71453	245	1.28547	9.99942	0	2
59	8.71638	243	8.71697	244	1.28303	9.99941	1	1
60	8.71880	242	8.71940	243	1.28060	9.99940	1	0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	8.71880		8.71940		1.28060	9.99940		60	240 238
1	8.72120	240	8.72181	241	1.27819	9.99940	0	59	6 24.0 23.8
2	8.72359	239	8.72420	239	1.27580	9.99939	1	58	7 28.0 27.8
3	8.72597	238	8.72659	239	1.27341	9.99938	1	57	8 32.0 31.7
4	8.72834	237	8.72896	237	1.27104	9.99938	0	56	9 36.0 35.7
5	8.73069	235	8.73132	236	1.26868	9.99937	1	55	10 40.0 39.7
6	8.73303	234	8.73366	234	1.26634	9.99936	0	54	20 80.0 79.3
7	8.73535	232	8.73600	232	1.26400	9.99936	1	53	30 120.0 119.0
8	8.73767	230	8.73832	231	1.26168	9.99935	1	52	40 160.0 158.7
9	8.73997	229	8.74063	229	1.25937	9.99934	0	51	50 200.0 198.3
10	8.74226	228	8.74292	229	1.25708	9.99934	1	50	236 234
11	8.74454	226	8.74521	227	1.25479	9.99933	1	49	6 23.6 23.4
12	8.74680	226	8.74748	226	1.25252	9.99932	0	48	7 27.1 27.3
13	8.74906	224	8.74974	225	1.25026	9.99932	1	47	8 31.5 31.2
14	8.75130	223	8.75199	224	1.24801	9.99931	1	46	9 35.4 35.1
15	8.75353	222	8.75423	222	1.24577	9.99930	1	45	10 39.3 39.0
16	8.75575	220	8.75645	222	1.24355	9.99929	0	44	20 78.7 78.0
17	8.75795	220	8.75867	220	1.24133	9.99929	1	43	30 118.0 117.0
18	8.76015	219	8.76087	219	1.23913	9.99928	1	42	40 157.3 156.0
19	8.76234	217	8.76306	219	1.23694	9.99927	1	41	50 196.7 195.0
20	8.76451	216	8.76525	217	1.23475	9.99926	0	40	232 230
21	8.76667	216	8.76742	216	1.23258	9.99926	1	39	6 23.2 23.0
22	8.76883	214	8.76958	215	1.23042	9.99925	1	38	7 27.1 26.8
23	8.77097	213	8.77173	214	1.22827	9.99924	1	37	8 30.9 30.7
24	8.77310	212	8.77387	213	1.22613	9.99923	0	36	9 34.8 34.5
25	8.77522	211	8.77600	211	1.22400	9.99923	1	35	10 38.7 38.3
26	8.77733	210	8.77811	211	1.22189	9.99922	1	34	20 77.3 76.7
27	8.77943	209	8.78022	210	1.21978	9.99921	1	33	30 116.0 115.0
28	8.78152	208	8.78232	209	1.21768	9.99920	0	32	40 154.7 153.3
29	8.78360	208	8.78441	208	1.21559	9.99920	1	31	50 193.3 191.7
30	8.78568	206	8.78649	206	1.21351	9.99919	1	30	228 226
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	8.78568		8.78649		1.21351	9.99919		30	216 214
31	8.78774	206	8.78855	206	1.21145	9.99918	1	29	6 21.6 21.4 7 25.2 25.0
32	8.78979	205	8.79061	205	1.20939	9.99917	1	28	8 25.8 25.5 9 32.4 32.1
33	8.79183	204	8.79266	204	1.20734	9.99917	0	27	10 36.0 35.7 20 72.0 71.3
34	8.79386	203	8.79470	203	1.20530	9.99916	1	26	30 108.0 107.0 40 144.0 142.7
35	8.79588	202	8.79673	202	1.20327	9.99915	1	25	50 180.0 178.3 212 210
36	8.79789	201	8.79875	201	1.20125	9.99914	1	24	6 21.2 21.0 7 24.7 24.5
37	8.79990	201	8.80076	201	1.19924	9.99913	1	23	8 28.3 28.0 9 31.8 31.5
38	8.80189	199	8.80277	199	1.19723	9.99913	0	22	10 35.3 35.0 20 70.7 70.0
39	8.80388	199	8.80476	199	1.19524	9.99912	1	21	30 106.0 105.0 40 141.3 140.0
40	8.80585	197	8.80674	198	1.19328	9.99911	1	20	50 176.7 175.0 208 206
41	8.80782	197	8.80872	198	1.19128	9.99910	1	19	6 20.8 20.6 7 24.3 24.0
42	8.80978	196	8.81068	196	1.18932	9.99909	1	18	8 27.7 27.5 9 31.2 30.9
43	8.81173	195	8.81264	196	1.18736	9.99909	0	17	10 34.7 34.2 20 69.3 68.7
44	8.81367	194	8.81459	195	1.18541	9.99908	1	16	30 104.0 103.0 40 138.7 137.3
45	8.81560	193	8.81653	194	1.18347	9.99907	1	15	50 173.3 171.7 204 202
46	8.81752	192	8.81846	193	1.18154	9.99906	1	14	6 20.4 20.2 7 23.8 23.6
47	8.81944	192	8.82038	192	1.17962	9.99905	1	13	8 27.2 26.9 9 30.6 30.3
48	8.82134	190	8.82230	190	1.17770	9.99904	0	12	10 34.0 33.7 20 68.0 67.3
49	8.82324	190	8.82420	190	1.17580	9.99904	1	11	30 102.0 101.0 40 136.0 134.7
50	8.82513	189	8.82610	190	1.17390	9.99903	1	10	50 170.0 168.3 200 198
51	8.82701	188	8.82799	189	1.17201	9.99902	1	9	6 20.0 19.8 7 23.3 23.1
52	8.82888	187	8.82987	188	1.17013	9.99901	1	8	8 26.7 26.4 9 30.0 29.7
53	8.83075	187	8.83175	188	1.16825	9.99900	1	7	10 33.3 33.0 20 66.7 66.0
54	8.83261	186	8.83361	186	1.16639	9.99899	1	6	30 100.0 99.0 40 133.3 132.0
55	8.83446	185	8.83547	186	1.16453	9.99898	1	5	50 166.7 165.0 196 194
56	8.83630	184	8.83732	185	1.16268	9.99898	0	4	6 19.6 19.4 7 22.9 22.6
57	8.83813	183	8.83916	184	1.16084	9.99897	1	3	8 26.1 25.9 9 29.4 29.1
58	8.83996	183	8.84100	184	1.15900	9.99896	1	2	10 32.7 32.3 20 65.3 64.7
59	8.84177	181	8.84282	182	1.15718	9.99895	1	1	30 98.0 97.0 40 130.7 129.3
60	8.84358	181	8.84464	182	1.15536	9.99894	1	0	50 163.3 161.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	8.84358		8.84464		1.15536	9.99894		60	192 190
		181		182			1		6 19.2 19.0
1	8.84539		8.84646		1.15354	9.99893		59	7 22.4 22.2
		179		130			1		8 25.6 25.3
2	8.84718		8.84826		1.15174	9.99892		58	9 28.8 28.5
		179		180			1		10 32.0 31.7
3	8.84897		8.85006		1.14994	9.99891		57	20 64.0 63.3
		178		179			0		30 96.0 95.0
4	8.85075		8.85185		1.14815	9.99891		56	40 128.0 126.7
		177		178			1		50 160.0 158.3
5	8.85252		8.85363		1.14637	9.99890		55	188 186
		177		177			1		6 18.8 18.6
6	8.85429		8.85540		1.14460	9.99889		54	7 21.9 21.7
		176		177			1		8 25.1 24.8
7	8.85605		8.85717		1.14283	9.99888		53	9 28.2 27.9
		175		176			1		10 31.3 31.0
8	8.85780		8.85893		1.14107	9.99887		52	20 62.7 62.0
		175		176			1		30 94.0 93.0
9	8.85955		8.86069		1.13931	9.99886		51	40 125.3 124.0
		173		174			1		50 156.7 155.0
10	8.86128		8.86243		1.13757	9.99885		50	184 182
		173		174			1		6 18.4 18.2
11	8.86301		8.86417		1.13583	9.99884		49	7 21.5 21.2
		173		174			1		8 24.5 24.3
12	8.86474		8.86591		1.13409	9.99883		48	9 27.6 27.3
		171		172			1		10 30.7 30.3
13	8.86645		8.86763		1.13237	9.99882		47	20 61.3 60.7
		171		172			1		30 92.0 91.0
14	8.86816		8.86935		1.13065	9.99881		46	40 122.7 121.3
		171		171			1		50 153.3 151.7
15	8.86987		8.87106		1.12894	9.99880		45	180 178
		169		171			1		6 18.0 17.8
16	8.87156		8.87277		1.12723	9.99879		44	7 21.0 20.8
		169		170			0		8 24.0 23.7
17	8.87325		8.87447		1.12553	9.99879		43	9 27.0 26.7
		169		169			1		10 30.0 29.7
18	8.87494		8.87616		1.12384	9.99878		42	20 60.0 59.3
		167		169			1		30 90.0 89.0
19	8.87661		8.87785		1.12215	9.99877		41	40 120.0 118.7
		168		168			1		50 150.0 148.3
20	8.87829		8.87953		1.12047	9.99876		40	176 174
		166		167			1		6 17.6 17.4
21	8.87995		8.88120		1.11880	9.99875		39	7 20.5 20.3
		166		167			1		8 23.5 23.2
22	8.88161		8.88287		1.11713	9.99874		38	9 26.4 26.1
		165		166			1		10 29.3 29.0
23	8.88326		8.88453		1.11547	9.99873		37	20 58.7 58.0
		164		165			1		30 88.0 87.0
24	8.88490		8.88618		1.11382	9.99872		36	40 117.3 116.0
		164		165			1		50 146.7 145.0
25	8.88654		8.88783		1.11217	9.99871		35	172 170
		163		165			1		6 17.2 17.0
26	8.88817		8.88948		1.11052	9.99870		34	7 20.1 19.8
		163		163			1		8 22.9 22.7
27	8.88980		8.89111		1.10889	9.99869		33	9 25.8 25.5
		162		163			1		10 28.7 28.3
28	8.89142		8.89274		1.10726	9.99868		32	20 57.3 56.7
		162		163			1		30 86.0 85.0
29	8.89304		8.89437		1.10563	9.99867		31	40 114.7 113.3
		160		161			1		50 143.3 141.7
30	8.89464		8.89598		1.10402	9.99866		30	
		161		162			1		
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	8.89464	161	8.89598	162	1.10402	9.99866	1	30	168 168
31	8.89625	159	8.89760	160	1.10240	9.99865	1	29	6 16.8 16.6 7 19.6 19.4
32	8.89784	159	8.89920	160	1.10080	9.99864	1	28	8 22.4 22.1 9 25.2 24.9
33	8.89943	159	8.90080	160	1.09920	9.99863	1	27	10 28.0 27.7 20 56.0 55.3
34	8.90102	158	8.90240	159	1.09760	9.99862	1	26	30 84.0 83.0 40 112.0 110.7 50 140.0 138.3
35	8.90260	157	8.90399	158	1.09601	9.99861	1	25	164 162 6 16.4 16.2 7 19.1 18.9
36	8.90417	157	8.90557	158	1.09443	9.99860	1	24	8 21.9 21.6 9 24.6 24.3
37	8.90574	156	8.90715	157	1.09285	9.99859	1	23	10 27.3 27.0 20 54.7 54.0
38	8.90730	155	8.90872	157	1.09128	9.99858	1	22	30 82.0 81.0 40 109.3 108.0 50 136.7 135.0
39	8.90885	155	8.91029	156	1.08971	9.99857	1	21	160 158 6 16.0 15.8 7 18.7 18.4
40	8.91040	155	8.91185	155	1.08815	9.99856	1	20	8 21.3 21.1 9 24.0 23.7 10 26.7 26.3
41	8.91195	154	8.91340	155	1.08660	9.99855	1	19	20 53.3 52.7 30 80.0 79.0 40 106.7 105.3 50 133.3 131.7
42	8.91349	153	8.91495	153	1.08505	9.99854	1	18	156 154 6 15.6 15.4 7 18.2 18.0
43	8.91502	153	8.91650	153	1.08350	9.99853	1	17	8 20.8 20.5 9 23.4 23.1 10 26.0 25.7
44	8.91655	152	8.91803	154	1.08197	9.99852	1	16	20 52.0 51.3 30 78.0 77.0 40 104.0 102.7 50 130.0 128.3
45	8.91807	152	8.91957	153	1.08043	9.99851	1	15	152 150 6 15.2 15.0 7 17.7 17.5
46	8.91959	151	8.92110	152	1.07890	9.99850	2	14	8 20.3 20.0 9 22.8 22.5 10 25.3 25.0
47	8.92110	151	8.92262	152	1.07738	9.99848	1	13	20 50.7 50.0 30 76.0 75.0 40 101.3 100.0 50 126.7 125.0
48	8.92261	150	8.92414	151	1.07586	9.99847	1	12	148 146 6 14.8 14.6 7 17.3 17.0
49	8.92411	150	8.92565	151	1.07435	9.99846	1	11	8 19.7 19.5 9 22.2 21.9 10 24.7 24.3
50	8.92561	149	8.92716	150	1.07284	9.99845	1	10	20 49.3 48.7 30 74.0 73.0 40 98.7 97.3 50 123.3 121.7
51	8.92710	149	8.92866	150	1.07134	9.99844	1	9	
52	8.92859	148	8.93016	149	1.06984	9.99843	1	8	
53	8.93007	147	8.93165	148	1.06835	9.99842	1	7	
54	8.93154	147	8.93313	149	1.06687	9.99841	1	6	
55	8.93301	147	8.93462	147	1.06538	9.99840	1	5	
56	8.93448	146	8.93609	147	1.06391	9.99839	1	4	
57	8.93594	146	8.93756	147	1.06244	9.99838	1	3	
58	8.93740	145	8.93903	146	1.06097	9.99837	1	2	
59	8.93885	145	8.94049	146	1.05951	9.99836	2	1	
60	8.94030	144	8.94195	145	1.05805	9.99834	1	0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	8.94030		8.94195		1.05805	9.99884		60	146 144
1	8.94174	144	8.94340	145	1.05660	9.99833	1	59	1 2.4 2.4
2	8.94317	143	8.94485	145	1.05515	9.99832	1	58	2 4.9 4.8
3	8.94461	144	8.94630	145	1.05370	9.99831	1	57	3 7.3 7.2
4	8.94603	142	8.94773	143	1.05227	9.99830	1	56	4 9.7 9.6
5	8.94746	143	8.94917	144	1.05083	9.99829	1	55	5 12.2 12.0
6	8.94887	141	8.95060	143	1.04940	9.99828	1	54	6 14.6 14.4
7	8.95029	142	8.95202	142	1.04798	9.99827	1	53	7 17.0 16.8
8	8.95170	141	8.95344	142	1.04656	9.99825	2	52	8 19.5 19.2
9	8.95310	140	8.95486	141	1.04514	9.99824	1	51	9 21.9 21.6
10	8.95450	139	8.95627	140	1.04373	9.99823	1	50	10 24.3 24.0
11	8.95589	139	8.95767	141	1.04233	9.99822	1	49	11 26.7 26.4
12	8.95728	139	8.95908	139	1.04092	9.99821	1	48	12 29.1 28.8
13	8.95867	138	8.96047	140	1.03953	9.99820	1	47	13 31.5 31.2
14	8.96005	138	8.96187	138	1.03813	9.99819	2	46	14 33.9 33.6
15	8.96143	137	8.96325	139	1.03675	9.99817	1	45	15 36.3 36.0
16	8.96280	137	8.96464	138	1.03536	9.99816	1	44	16 38.7 38.4
17	8.96417	136	8.96602	137	1.03398	9.99815	1	43	17 41.1 40.8
18	8.96553	136	8.96739	138	1.03261	9.99814	1	42	18 43.5 43.2
19	8.96689	136	8.96877	136	1.03123	9.99813	1	41	19 45.9 45.6
20	8.96825	135	8.97013	137	1.02987	9.99812	2	40	20 48.3 48.0
21	8.96960	135	8.97150	135	1.02850	9.99810	1	39	21 50.7 50.4
22	8.97095	134	8.97285	136	1.02715	9.99809	1	38	22 53.1 52.8
23	8.97229	134	8.97421	135	1.02579	9.99808	1	37	23 55.5 55.2
24	8.97363	133	8.97556	135	1.02444	9.99807	1	36	24 57.9 57.6
25	8.97496	133	8.97691	134	1.02309	9.99806	2	35	25 60.3 60.0
26	8.97629	133	8.97825	134	1.02175	9.99804	1	34	26 62.7 62.4
27	8.97762	132	8.97959	133	1.02041	9.99803	1	33	27 65.1 64.8
28	8.97894	132	8.98092	133	1.01908	9.99802	1	32	28 67.5 67.2
29	8.98026	131	8.98225	133	1.01775	9.99801	1	31	29 69.9 69.6
30	8.98157	131	8.98358	132	1.01642	9.99800	2	30	30 72.3 72.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	8.98157		8.98358		1.01642	9.99800		30	134 135
31	8.98288	131	8.98490	132	1.01510	9.99798	2	1	2.2 2.2
32	8.98419	131	8.98622	132	1.01378	9.99797	1	29	2 4.5 4.4
33	8.98549	130	8.98753	131	1.01247	9.99796	1	28	3 6.7 6.6
34	8.98679	130	8.98884	131	1.01116	9.99795	1	27	4 8.9 8.8
35	8.98808	129	8.99015	131	1.00985	9.99793	2	26	5 11.2 11.0
36	8.98937	129	8.99145	130	1.00855	9.99792	1	25	6 13.4 13.2
37	8.99066	128	8.99275	130	1.00725	9.99791	1	24	7 15.6 15.4
38	8.99194	128	8.99405	129	1.00595	9.99790	2	23	8 17.9 17.6
39	8.99322	128	8.99534	128	1.00466	9.99788	1	22	9 20.1 19.8
40	8.99450	127	8.99662	127	1.00336	9.99787	1	21	10 22.3 22.0
41	8.99577	127	8.99791	126	1.00209	9.99786	2	20	11 24.7 24.4
42	8.99704	126	8.99919	126	1.00081	9.99785	1	19	12 27.0 26.7
43	8.99830	126	9.00046	125	0.99954	9.99783	2	18	13 29.3 29.0
44	8.99956	126	9.00174	125	0.99826	9.99782	1	17	14 31.6 31.3
45	9.00082	125	9.00301	124	0.99699	9.99781	2	16	15 33.9 33.6
46	9.00207	125	9.00427	124	0.99573	9.99780	1	15	16 36.2 35.9
47	9.00332	124	9.00553	123	0.99447	9.99778	2	14	17 38.5 38.2
48	9.00456	124	9.00679	123	0.99321	9.99777	1	13	18 40.8 40.5
49	9.00581	123	9.00805	122	0.99195	9.99776	2	12	19 43.1 42.8
50	9.00704	123	9.00930	122	0.99070	9.99775	1	11	20 45.4 45.1
51	9.00828	122	9.01055	121	0.98945	9.99773	2	10	21 47.7 47.4
52	9.00951	122	9.01179	121	0.98821	9.99772	1	9	22 50.0 49.7
53	9.01074	121	9.01303	120	0.98697	9.99771	2	8	23 52.3 52.0
54	9.01196	121	9.01427	120	0.98573	9.99769	1	7	24 54.6 54.3
55	9.01318	120	9.01550	119	0.98450	9.99768	2	6	25 56.9 56.6
56	9.01440	120	9.01678	119	0.98327	9.99767	1	5	26 59.2 58.9
57	9.01561	119	9.01796	118	0.98204	9.99765	2	4	27 61.5 61.2
58	9.01682	119	9.01918	118	0.98082	9.99764	1	3	28 63.8 63.5
59	9.01803	118	9.02040	117	0.97960	9.99763	2	2	29 66.1 65.8
60	9.01923	118	9.02162	117	0.97838	9.99761	1	1	30 68.4 68.1
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.01923		9.02162		0.97838	9.99761		60	120 119
1	9.02043	120	9.02283	121	0.97717	9.99760	1	59	1 2.0 2.0 2 4.0 4.0 3 6.0 6.0 4 8.0 7.9 5 10.0 9.9 6 12.0 11.9 7 14.0 13.9 8 16.0 15.9 9 18.0 17.9 10 20.0 19.5
2	9.02163	120	9.02404	121	0.97596	9.99759	1	58	20 40.0 39.7 30 60.0 59.5 40 80.0 79.3 50 100.0 99.2
3	9.02283	120	9.02525	121	0.97475	9.99757	2	57	
4	9.02402	119	9.02645	120	0.97355	9.99756	1	56	
5	9.02520	118	9.02766	121	0.97234	9.99755	1	55	
6	9.02639	119	9.02885	119	0.97115	9.99753	2	54	
7	9.02757	118	9.03005	120	0.96995	9.99752	1	53	
8	9.02874	117	9.03124	119	0.96876	9.99751	1	52	118 117
9	9.02992	118	9.03242	118	0.96758	9.99749	2	51	1 2.0 2.0 2 3.9 3.9 3 5.9 5.9 4 7.9 7.8 5 9.8 9.8 6 11.8 11.7 7 13.8 13.7 8 15.7 15.6 9 17.7 17.6 10 19.7 19.5 20 39.3 39.0 30 59.0 58.5 40 78.7 78.0 50 98.3 97.5
10	9.03109	117	9.03361	119	0.96639	9.99748	1	50	
11	9.03226	117	9.03479	118	0.96521	9.99747	1	49	
12	9.03342	116	9.03597	118	0.96403	9.99745	2	48	
13	9.03458	116	9.03714	117	0.96286	9.99744	1	47	
14	9.03574	116	9.03832	118	0.96168	9.99742	2	46	
15	9.03690	116	9.03948	116	0.96052	9.99741	1	45	
16	9.03805	115	9.04065	117	0.95935	9.99740	1	44	116 115
17	9.03920	115	9.04181	116	0.95819	9.99738	2	43	1 1.9 1.9 2 3.9 3.8 3 5.8 5.8 4 7.7 7.7 5 9.7 9.6 6 11.6 11.5 7 13.5 13.4 8 15.5 15.3 9 17.4 17.3 10 19.3 19.2 20 38.7 38.3 30 58.0 57.5 40 77.3 76.7 50 96.7 95.8
18	9.04034	114	9.04297	116	0.95703	9.99737	1	42	
19	9.04149	115	9.04413	116	0.95587	9.99736	1	41	
20	9.04262	113	9.04528	115	0.95472	9.99734	2	40	
21	9.04376	114	9.04643	115	0.95357	9.99733	1	39	
22	9.04490	114	9.04758	115	0.95242	9.99731	2	38	
23	9.04603	113	9.04873	115	0.95127	9.99730	1	37	
24	9.04715	112	9.04987	114	0.95013	9.99728	2	36	
25	9.04828	113	9.05101	114	0.94899	9.99727	1	35	114 113
26	9.04940	112	9.05214	113	0.94786	9.99726	1	34	1 1.9 1.9 2 3.8 3.8 3 5.7 5.7 4 7.6 7.5 5 9.5 9.4 6 11.4 11.3 7 13.3 13.2 8 15.2 15.1 9 17.1 17.0 10 19.0 18.8 20 38.0 37.7 30 57.0 56.5 40 76.0 75.3 50 95.0 94.2
27	9.05052	112	9.05328	114	0.94672	9.99724	2	33	
28	9.05164	112	9.05441	113	0.94559	9.99723	1	32	
29	9.05275	111	9.05553	112	0.94447	9.99721	2	31	
30	9.05386	111	9.05666	113	0.94334	9.99720	1	30	
		111		112			2		
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.05386		9.05686		0.94334	9.99720		30	112 111
		111		112			2		1 1.9 1.9
31	9.05497		9.05778		0.94222	9.99718		29	2 3.7 3.7
		110		112			1		3 5.6 5.6
32	9.05607		9.05890		0.94110	9.99717		28	4 7.5 7.4
		110		112			1		5 9.3 9.3
33	9.05717		9.06002		0.93998	9.99716		27	6 11.2 11.1
		110		111			2		7 13.1 13.0
34	9.05827		9.06113		0.93887	9.99714		26	8 14.9 14.8
		110		111			1		9 16.8 16.7
35	9.05937		9.06224		0.93776	9.99713		25	10 18.7 18.5
		109		111			2		20 37.3 37.0
36	9.06046		9.06335		0.93665	9.99711		24	30 56.0 55.5
		109		110			1		40 74.7 74.0
37	9.06155		9.06445		0.93555	9.99710		23	50 93.3 92.5
		109		111			2		110 109
38	9.06264		9.06556		0.93444	9.99708		22	
		108		110			1		1 1.8 1.8
39	9.06372		9.06666		0.93334	9.99707		21	2 3.7 3.6
		109		109			2		3 5.5 5.5
40	9.06481		9.06775		0.93225	9.99705		20	4 7.3 7.3
		108		110			1		5 9.2 9.1
41	9.06589		9.06885		0.93115	9.99704		19	6 11.0 10.9
		107		109			2		7 12.8 12.7
42	9.06696		9.06994		0.93006	9.99702		18	8 14.7 14.5
		108		109			1		9 16.5 16.4
43	9.06804		9.07103		0.92897	9.99701		17	10 18.3 18.2
		107		108			2		20 36.7 36.3
44	9.06911		9.07211		0.92789	9.99699		16	30 55.0 54.5
		107		109			1		40 73.3 72.7
45	9.07018		9.07320		0.92680	9.99698		15	50 91.7 90.8
		106		108			2		108 107
46	9.07124		9.07428		0.92572	9.99696		14	1 1.8 1.8
		107		108			1		2 3.6 3.6
47	9.07231		9.07536		0.92464	9.99695		13	3 5.4 5.4
		106		107			2		4 7.2 7.1
48	9.07337		9.07643		0.92357	9.99693		12	5 9.0 8.9
		105		108			1		6 10.8 10.7
49	9.07442		9.07751		0.92249	9.99692		11	7 12.6 12.5
		106		107			2		8 14.4 14.3
50	9.07548		9.07858		0.92142	9.99690		10	9 16.2 16.1
		105		106			1		10 18.0 17.8
51	9.07653		9.07964		0.92036	9.99689		9	20 36.0 35.7
		105		107			2		30 54.0 53.5
52	9.07758		9.08071		0.91929	9.99687		8	40 72.0 71.3
		105		106			1		50 90.0 89.2
53	9.07863		9.08177		0.91823	9.99686		7	
		105		106			2		106 105
54	9.07968		9.08283		0.91717	9.99684		6	
		104		106			1		1 1.8 1.8
55	9.08072		9.08389		0.91611	9.99683		5	2 3.5 3.5
		104		106			2		3 5.3 5.3
56	9.08176		9.08495		0.91505	9.99681		4	4 7.1 7.0
		104		105			1		5 8.8 8.8
57	9.08280		9.08600		0.91400	9.99680		3	6 10.6 10.5
		103		105			2		7 12.4 12.3
58	9.08383		9.08705		0.91295	9.99678		2	8 14.1 14.0
		103		105			1		9 15.9 15.8
59	9.08486		9.08810		0.91190	9.99677		1	10 17.7 17.5
		103		104			2		20 35.3 35.0
60	9.08589		9.08914		0.91086	9.99675		0	30 53.0 52.5
		103		105			1		40 70.7 70.0
									50 88.3 87.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.08589		9.08914		0.91086	9.99675		60	105 104
1	9.08692	103	9.09019	105	0.90981	9.99674	1	59	1 1.8 1.7
2	9.08795	103	9.09123	104	0.90877	9.99672	2	58	2 3.5 3.5
3	9.08897	102	9.09227	104	0.90773	9.99670	2	57	3 5.3 5.2
4	9.08999	102	9.09330	103	0.90670	9.99669	1	56	4 7.0 6.9
5	9.09101	102	9.09434	104	0.90566	9.99667	2	55	5 8.8 8.7
6	9.09202	101	9.09537	103	0.90463	9.99666	1	54	6 10.5 10.4
7	9.09304	102	9.09640	102	0.90360	9.99664	2	53	7 12.3 12.1
8	9.09405	101	9.09742	103	0.90258	9.99663	1	52	8 14.0 13.9
9	9.09506	100	9.09845	102	0.90155	9.99661	2	51	9 15.8 15.6
10	9.09606	101	9.09947	101	0.90053	9.99659	1	50	10 17.5 17.3
11	9.09707	100	9.10049	100	0.89951	9.99658	2	49	20 35.0 34.7
12	9.09807	100	9.10150	101	0.89850	9.99656	1	48	30 52.5 52.0
13	9.09907	99	9.10252	101	0.89748	9.99655	2	47	40 70.0 69.3
14	9.10006	99	9.10353	101	0.89647	9.99653	1	46	50 87.5 86.7
15	9.10106	99	9.10454	101	0.89546	9.99651	2	45	1 1.7 1.7
16	9.10205	99	9.10555	101	0.89445	9.99650	1	44	2 3.4 3.4
17	9.10304	98	9.10656	100	0.89344	9.99648	2	43	3 5.2 5.1
18	9.10402	99	9.10756	100	0.89244	9.99647	1	42	4 6.9 6.8
19	9.10501	98	9.10856	100	0.89144	9.99645	2	41	5 8.6 8.5
20	9.10599	98	9.10956	100	0.89044	9.99643	1	40	6 10.3 10.2
21	9.10697	98	9.11056	99	0.88944	9.99642	2	39	7 12.0 11.9
22	9.10795	98	9.11155	99	0.88845	9.99640	1	38	8 13.7 13.6
23	9.10893	97	9.11254	99	0.88746	9.99638	2	37	9 15.5 15.3
24	9.10990	97	9.11353	99	0.88647	9.99637	1	36	10 17.2 17.0
25	9.11087	97	9.11452	99	0.88548	9.99635	2	35	20 34.3 34.0
26	9.11184	97	9.11551	98	0.88449	9.99633	1	34	30 51.5 51.0
27	9.11281	96	9.11649	98	0.88351	9.99632	2	33	40 68.7 68.0
28	9.11377	97	9.11747	98	0.88253	9.99630	1	32	50 85.8 85.0
29	9.11474	96	9.11845	98	0.88155	9.99629	2	31	1 1.7 1.7
30	9.11570	96	9.11943	97	0.88057	9.99627	1	30	2 3.4 3.3
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.11570	96	9.11943	97	0.88057	9.99827	2	30	97 96
31	9.11666	95	9.12040	98	0.87960	9.99825	1	29	1 1.6 1.6 2 3.2 3.2
32	9.11761	96	9.12138	97	0.87862	9.99824	2	28	3 4.9 4.8 4 6.5 6.4
33	9.11857	95	9.12235	97	0.87765	9.99822	2	27	5 8.1 8.0 6 9.7 9.6
34	9.11952	95	9.12332	96	0.87668	9.99820	2	26	7 11.3 11.2 8 12.9 12.8
35	9.12047	95	9.12428	97	0.87572	9.99818	1	25	9 14.6 14.4 10 16.2 16.0
36	9.12142	94	9.12525	96	0.87475	9.99817	2	24	20 32.3 32.0 30 48.5 48.0
37	9.12236	95	9.12621	96	0.87379	9.99815	2	23	40 64.7 64.0 50 80.8 80.0
38	9.12331	94	9.12717	96	0.87283	9.99813	1	22	95 94
39	9.12425	94	9.12813	96	0.87187	9.99812	2	21	1 1.6 1.6 2 3.2 3.1
40	9.12519	93	9.12909	95	0.87091	9.99810	2	20	3 4.8 4.7 4 6.3 6.3
41	9.12612	94	9.13004	95	0.86996	9.99808	1	19	5 7.9 7.8 6 9.5 9.4
42	9.12706	93	9.13099	95	0.86901	9.99807	2	18	7 11.1 11.0 8 12.7 12.5
43	9.12799	93	9.13194	95	0.86806	9.99805	2	17	9 14.3 14.1 10 15.8 15.7
44	9.12892	93	9.13289	95	0.86711	9.99803	2	16	20 31.7 31.3 30 47.5 47.0
45	9.12985	93	9.13384	94	0.86616	9.99801	1	15	40 63.3 62.7 50 79.2 78.3
46	9.13078	93	9.13478	95	0.86522	9.99800	2	14	93 92
47	9.13171	92	9.13573	94	0.86427	9.99798	2	13	1 1.6 1.5 2 3.1 3.1
48	9.13263	92	9.13667	94	0.86333	9.99796	1	12	3 4.7 4.6 4 6.2 6.1
49	9.13355	92	9.13761	93	0.86239	9.99795	2	11	5 7.8 7.7 6 9.3 9.2
50	9.13447	92	9.13854	94	0.86146	9.99793	2	10	7 10.9 10.7 8 12.4 12.3
51	9.13539	91	9.13948	93	0.86052	9.99791	2	9	9 14.0 13.8 10 15.5 15.3
52	9.13630	92	9.14041	93	0.85959	9.99789	1	8	20 31.0 30.7 30 46.5 46.0
53	9.13722	91	9.14134	93	0.85866	9.99788	2	7	40 62.0 61.3 50 77.5 76.7
54	9.13813	91	9.14227	93	0.85773	9.99786	2	6	91 90
55	9.13904	90	9.14320	92	0.85680	9.99784	2	5	1 1.5 1.5 2 3.0 3.0
56	9.13994	91	9.14412	92	0.85588	9.99782	1	4	3 4.6 4.5 4 6.1 6.0
57	9.14085	90	9.14504	93	0.85496	9.99781	2	3	5 7.6 7.5 6 9.1 9.0
58	9.14175	91	9.14597	91	0.85403	9.99779	2	2	7 10.6 10.5 8 12.1 12.0
59	9.14266	90	9.14688	92	0.85312	9.99777	2	1	9 13.7 13.5 10 15.2 15.0
60	9.14356	89	9.14780	92	0.85220	9.99775	1	0	20 30.3 30.0 30 45.5 45.0 40 60.7 60.0 50 75.8 75.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.14356		9.14780		0.85220	9.99575		60	
1	9.14445	89	9.14872	92	0.85128	9.99574	1	59	
2	9.14535	90	9.14963	91	0.85037	9.99572	2	58	
3	9.14624	89	9.15054	91	0.84946	9.99570	2	57	92 91
4	9.14714	90	9.15145	91	0.84855	9.99568	2	56	1 1.5 1.5
		89		91			2		2 3.1 3.0
5	9.14803		9.15236		0.84764	9.99566		55	3 4.6 4.6
		88		91			2		4 6.1 6.1
6	9.14891	89	9.15327	91	0.84673	9.99565	1	54	5 7.7 7.6
7	9.14980	89	9.15417	90	0.84583	9.99563	2	53	6 9.2 9.1
8	9.15069	88	9.15508	90	0.84492	9.99561	2	52	7 10.7 10.6
9	9.15157	88	9.15598	90	0.84402	9.99559	2	51	8 12.3 12.1
		88		90			2		9 13.8 13.7
10	9.15245		9.15688		0.84312	9.99557		50	10 15.3 15.2
		88		89			1		20 30.7 30.3
11	9.15333	88	9.15777	89	0.84223	9.99556	2	49	30 46.0 45.5
12	9.15421	87	9.15867	90	0.84133	9.99554	2	48	40 61.3 60.7
13	9.15508	88	9.15956	89	0.84044	9.99552	2	47	50 76.7 75.8
14	9.15596	87	9.16046	90	0.83954	9.99550	2	46	
		87		89			2		90 89
15	9.15683		9.16135		0.83865	9.99548		45	1 1.5 1.5
		87		89			2		2 3.0 3.0
16	9.15770	87	9.16224	88	0.83776	9.99546	2	44	3 4.5 4.5
17	9.15857	87	9.16312	88	0.83688	9.99545	1	43	4 6.0 5.9
18	9.15944	86	9.16401	88	0.83599	9.99543	2	42	5 7.5 7.4
19	9.16030	86	9.16489	88	0.83511	9.99541	2	41	6 9.0 8.9
		86		88			2		7 10.5 10.4
20	9.16116		9.16577		0.83423	9.99539		40	8 12.0 11.9
		87		88			2		9 13.5 13.4
21	9.16203	86	9.16665	88	0.83335	9.99537	2	39	10 15.0 14.8
22	9.16289	85	9.16753	88	0.83247	9.99535	2	38	20 30.0 29.7
23	9.16374	86	9.16841	87	0.83159	9.99533	1	37	30 45.0 44.5
24	9.16460	85	9.16928	88	0.83072	9.99532	2	36	40 60.0 59.3
		85		88			2		50 75.0 74.2
25	9.16545		9.17016		0.82984	9.99530		35	
		86		87			2		88 87
26	9.16631	85	9.17103	87	0.82897	9.99528	2	34	1 1.5 1.5
27	9.16716	85	9.17190	87	0.82810	9.99526	2	33	2 2.9 2.9
28	9.16801	85	9.17277	86	0.82723	9.99524	2	32	3 4.4 4.4
29	9.16886	84	9.17363	87	0.82637	9.99522	2	31	4 5.9 5.8
		85		86			2		5 7.3 7.3
30	9.16970		9.17450		0.82550	9.99520		30	6 8.8 8.7
		85		86			2		7 10.3 10.2
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.16970	85	9.17450	86	0.82550	9.99520	2	30	86 85
31	9.17055	84	9.17536	86	0.82464	9.99518	1	29	1 1.4 1.4 2 2.9 2.8
32	9.17139	84	9.17622	86	0.82378	9.99517	2	28	3 4.3 4.3 4 5.7 5.7
33	9.17223	84	9.17708	86	0.82292	9.99515	2	27	5 7.2 7.1 6 8.6 8.5
34	9.17307	84	9.17794	86	0.82206	9.99513	2	26	7 10.0 9.9 8 11.5 11.3
35	9.17391	83	9.17880	85	0.82120	9.99511	2	25	9 12.9 12.8 10 14.3 14.2
36	9.17474	84	9.17965	86	0.82035	9.99509	2	24	20 28.7 28.3 30 43.0 42.5
37	9.17558	83	9.18051	85	0.81949	9.99507	2	23	40 57.3 56.7 50 71.7 70.8
38	9.17641	83	9.18136	85	0.81864	9.99505	2	22	84 83
39	9.17724	83	9.18221	85	0.81779	9.99503	2	21	1 1.4 1.4 2 2.8 2.8
40	9.17807	83	9.18306	85	0.81694	9.99501	2	20	3 4.2 4.2 4 5.6 5.5
41	9.17890	83	9.18391	84	0.81609	9.99499	2	19	5 7.0 6.9 6 8.4 8.3
42	9.17973	82	9.18475	85	0.81525	9.99497	2	18	7 9.8 9.7 8 11.2 11.1
43	9.18055	82	9.18560	84	0.81440	9.99495	1	17	9 12.6 12.5 10 14.0 13.8
44	9.18137	83	9.18644	84	0.81356	9.99494	2	16	20 28.0 27.7 30 42.0 41.5
45	9.18220	82	9.18728	84	0.81272	9.99492	2	15	40 56.0 55.3 50 70.0 69.2
46	9.18302	81	9.18812	84	0.81188	9.99490	2	14	82 81
47	9.18383	82	9.18896	83	0.81104	9.99488	2	13	1 1.4 1.4 2 2.7 2.7
48	9.18465	82	9.18979	84	0.81021	9.99486	2	12	3 4.1 4.1 4 5.5 5.4
49	9.18547	81	9.19063	83	0.80937	9.99484	2	11	5 6.8 6.8 6 8.2 8.1
50	9.18628	81	9.19146	83	0.80854	9.99482	2	10	7 9.6 9.5 8 10.9 10.8
51	9.18709	81	9.19229	83	0.80771	9.99480	2	9	9 12.3 12.2 10 13.7 13.5
52	9.18790	81	9.19312	83	0.80688	9.99478	2	8	20 27.3 27.0 30 41.0 40.5
53	9.18871	81	9.19395	83	0.80605	9.99476	2	7	40 54.7 54.0 50 68.3 67.5
54	9.18952	81	9.19478	83	0.80522	9.99474	2	6	80
55	9.19033	80	9.19561	82	0.80439	9.99472	2	5	1 1.3 2 2.7
56	9.19113	80	9.19643	82	0.80357	9.99470	2	4	3 4.0 4 5.3
57	9.19193	80	9.19725	82	0.80275	9.99468	2	3	5 6.7 6 8.0
58	9.19273	80	9.19807	82	0.80193	9.99466	2	2	7 9.3 8 10.7
59	9.19353	80	9.19889	82	0.80111	9.99464	2	1	9 12.0 10 13.3
60	9.19433	80	9.19971	82	0.80029	9.99462	2	0	20 26.7 30 40.0 40 53.3 50 66.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.19433	80	9.19971	82	0.80029	9.99462	2	60	
1	9.19513	79	9.20053	81	0.79947	9.99460	2	59	
2	9.19592	80	9.20134	82	0.79866	9.99458	2	58	
3	9.19672	79	9.20216	81	0.79784	9.99456	2	57	82 81
4	9.19751	79	9.20297	81	0.79703	9.99454	2	56	1 1.4 1.4 2 2.7 2.7 3 4.1 4.1 4 5.5 5.4 5 6.8 6.8 6 8.2 8.1 7 9.6 9.5 8 10.9 10.8 9 12.3 12.2 10 13.7 13.5 20 27.3 27.0 30 41.0 40.5 40 54.7 54.0 50 68.3 67.5
5	9.19830	79	9.20378	81	0.79622	9.99452	2	55	
6	9.19909	79	9.20459	81	0.79541	9.99450	2	54	
7	9.19988	79	9.20540	81	0.79460	9.99448	2	53	
8	9.20067	78	9.20621	80	0.79379	9.99446	2	52	
9	9.20145	78	9.20701	81	0.79299	9.99444	2	51	
10	9.20223	79	9.20782	80	0.79218	9.99442	2	50	
11	9.20302	78	9.20862	80	0.79138	9.99440	2	49	
12	9.20380	78	9.20942	80	0.79058	9.99438	2	48	80 79
13	9.20458	77	9.21022	80	0.78978	9.99436	2	47	1 1.3 1.3 2 2.7 2.6 3 4.0 4.0 4 5.3 5.3 5 6.7 6.6 6 8.0 7.9 7 9.3 9.2 8 10.7 10.5 9 12.0 11.9 10 13.3 13.2 20 26.7 26.3 30 40.0 39.5 40 53.3 52.7 50 66.7 65.8
14	9.20535	78	9.21102	80	0.78898	9.99434	2	46	
15	9.20613	78	9.21182	79	0.78818	9.99432	3	45	
16	9.20691	77	9.21261	80	0.78739	9.99429	2	44	
17	9.20768	77	9.21341	79	0.78659	9.99427	2	43	
18	9.20845	77	9.21420	79	0.78580	9.99425	2	42	
19	9.20922	77	9.21499	79	0.78501	9.99423	2	41	
20	9.20999	77	9.21578	79	0.78422	9.99421	2	40	
21	9.21076	77	9.21657	79	0.78343	9.99419	2	39	78 77
22	9.21153	76	9.21736	78	0.78264	9.99417	2	38	1 1.3 1.3 2 2.6 2.6 3 3.9 3.9 4 5.2 5.1 5 6.5 6.4 6 7.8 7.7 7 9.1 9.0 8 10.4 10.3 9 11.7 11.6 10 13.0 12.8 20 26.0 25.7 30 39.0 38.5 40 52.0 51.3 50 65.0 64.2
23	9.21229	77	9.21814	79	0.78186	9.99415	2	37	
24	9.21306	76	9.21893	78	0.78107	9.99413	2	36	
25	9.21382	76	9.21971	78	0.78029	9.99411	2	35	
26	9.21458	76	9.22049	78	0.77951	9.99409	2	34	
27	9.21534	75	9.22127	78	0.77873	9.99407	3	33	
28	9.21610	76	9.22205	78	0.77795	9.99404	2	32	
29	9.21685	76	9.22283	78	0.77717	9.99402	2	31	
30	9.21761	75	9.22361	77	0.77639	9.99400	2	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.21761		9.22361		0.77639	9.99400		30	
31	9.21836	75		77			2	29	
32	9.21912	76	9.22438	78	0.77562	9.99398	2	28	
33	9.21987	75	9.22516	77	0.77484	9.99396	2	27	76 75
34	9.22062	75	9.22593	77	0.77407	9.99394	2	26	1 1.3 1.3 2 2.5 2.5 3 3.8 3.8 4 5.1 5.0 5 6.3 6.3 6 7.6 7.5 7 8.9 8.8 8 10.1 10.0 9 11.4 11.3 10 12.7 12.5 20 25.3 25.0 30 38.0 37.5 40 50.7 50.0 50 63.3 62.5
35	9.22137	75	9.22670	77	0.77330	9.99392	2	25	
36	9.22211	74	9.22747	77	0.77253	9.99390	2	24	
37	9.22286	75	9.22824	77	0.77176	9.99388	3	23	
38	9.22361	75	9.22901	76	0.77099	9.99385	2	22	
39	9.22435	74	9.22977	77	0.77023	9.99383	2	21	
40	9.22509	74	9.23054	76	0.76946	9.99381	2	20	
41	9.22583	74	9.23130	76	0.76870	9.99379	2	19	
42	9.22657	74	9.23206	77	0.76794	9.99377	2	18	74 73
43	9.22731	74	9.23283	76	0.76717	9.99375	3	17	1 1.2 1.2 2 2.5 2.4 3 3.7 3.7 4 4.9 4.9 5 6.2 6.1 6 7.4 7.3 7 8.6 8.5 8 9.9 9.7 9 11.1 11.0 10 12.3 12.2 20 24.7 24.3 30 37.0 36.5 40 49.3 48.7 50 61.7 60.8
44	9.22805	74	9.23359	76	0.76641	9.99372	2	16	
45	9.22878	73	9.23435	75	0.76565	9.99370	2	15	
46	9.22952	74	9.23510	76	0.76490	9.99368	2	14	
47	9.22952	73	9.23586	75	0.76414	9.99366	2	13	
48	9.23025	73	9.23661	76	0.76339	9.99364	2	12	
49	9.23098	73	9.23737	75	0.76263	9.99362	3	11	
50	9.23171	73	9.23812	75	0.76188	9.99359	2	10	
51	9.23244	73	9.23887	75	0.76113	9.99357	2	9	72 71
52	9.23317	73	9.23962	75	0.76038	9.99355	2	8	1 1.2 1.2 2 2.4 2.4 3 3.6 3.6 4 4.8 4.7 5 6.0 5.9 6 7.2 7.1 7 8.4 8.3 8 9.6 9.5 9 10.8 10.7 10 12.0 11.8 20 24.0 23.7 30 36.0 35.5 40 48.0 47.3 50 60.0 59.2
53	9.23390	72	9.24037	75	0.75963	9.99353	2	7	
54	9.23462	73	9.24112	74	0.75888	9.99351	3	6	
55	9.23535	72	9.24186	75	0.75814	9.99348	2	5	
56	9.23607	72	9.24261	74	0.75739	9.99346	2	4	
57	9.23679	73	9.24335	75	0.75665	9.99344	2	3	
58	9.23752	71	9.24410	74	0.75590	9.99342	2	2	
59	9.23823	72	9.24484	74	0.75516	9.99340	3	1	
60	9.23895	72	9.24558	74	0.75442	9.99337	2	0	
	9.23967	72	9.24632	74	0.75368	9.99335	2		
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.23967	72	9.24682	74	0.75368	9.99335	2	60	
1	9.24039	71	9.24706	73	0.75294	9.99333	2	59	
2	9.24110	71	9.24779	74	0.75221	9.99331	3	58	74 73
3	9.24181	72	9.24853	73	0.75147	9.99328	2	57	1 1.2 1.2
4	9.24253	71	9.24926	74	0.75074	9.99326	2	56	2 2.5 2.4
5	9.24324	71	9.25000	73	0.75000	9.99324	2	55	3 3.7 3.7
6	9.24395	71	9.25073	73	0.74927	9.99322	3	54	4 4.9 4.9
7	9.24466	70	9.25146	73	0.74854	9.99319	2	53	5 6.2 6.1
8	9.24536	71	9.25219	73	0.74781	9.99317	2	52	6 7.4 7.3
9	9.24607	70	9.25292	73	0.74708	9.99315	2	51	7 8.6 8.5
10	9.24677	71	9.25365	72	0.74635	9.99313	3	50	8 9.9 9.7
11	9.24748	70	9.25437	73	0.74563	9.99310	2	49	9 11.1 11.0
12	9.24818	70	9.25510	73	0.74490	9.99308	2	48	10 12.3 12.2
13	9.24888	70	9.25582	73	0.74418	9.99306	2	47	20 24.7 24.3
14	9.24958	70	9.25655	73	0.74345	9.99304	3	46	30 37.0 36.5
15	9.25028	70	9.25727	72	0.74273	9.99301	2	45	40 49.3 48.7
16	9.25098	70	9.25799	72	0.74201	9.99299	2	44	50 61.7 60.8
17	9.25168	69	9.25871	72	0.74129	9.99297	3	43	
18	9.25237	70	9.25943	72	0.74057	9.99294	2	42	
19	9.25307	69	9.26015	71	0.73985	9.99292	2	41	
20	9.25376	69	9.26086	72	0.73914	9.99290	2	40	
21	9.25445	69	9.26158	71	0.73842	9.99288	3	39	70 69
22	9.25514	69	9.26229	72	0.73771	9.99285	2	38	1 1.2 1.2
23	9.25583	69	9.26301	71	0.73699	9.99283	2	37	2 2.3 2.3
24	9.25652	69	9.26372	71	0.73628	9.99281	2	36	3 3.5 3.5
25	9.25721	69	9.26443	71	0.73557	9.99278	3	35	4 4.7 4.6
26	9.25790	68	9.26514	71	0.73486	9.99276	2	34	5 5.8 5.8
27	9.25858	68	9.26585	70	0.73415	9.99274	3	33	6 7.0 6.9
28	9.25927	68	9.26655	71	0.73345	9.99271	2	32	7 8.2 8.1
29	9.25995	68	9.26726	71	0.73274	9.99269	2	31	8 9.3 9.2
30	9.26063	68	9.26797	70	0.73203	9.99267	3	30	9 10.5 10.4
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.26063		9.26797		0.73203	9.99267		30	
31	9.26131	68	9.26867	70	0.73133	9.99264	3	29	
32	9.26199	68	9.26937	70	0.73063	9.99262	2	28	
33	9.26267	68	9.27008	71	0.72992	9.99260	2	27	70 69
34	9.26335	68	9.27078	70	0.72922	9.99257	3	26	1 1.2 1.2
35	9.26403	68	9.27148	70	0.72852	9.99255	2	25	2 2.3 2.3
36	9.26470	67	9.27218	70	0.72782	9.99252	3	24	3 3.5 3.5
37	9.26538	68	9.27288	70	0.72712	9.99250	2	23	4 4.7 4.6
38	9.26605	67	9.27357	69	0.72643	9.99248	2	22	5 5.8 5.8
39	9.26672	67	9.27427	70	0.72573	9.99245	3	21	6 7.0 6.9
40	9.26739	67	9.27496	69	0.72504	9.99243	2	20	7 8.2 8.1
41	9.26806	67	9.27566	70	0.72434	9.99241	3	19	8 9.3 9.2
42	9.26873	67	9.27635	69	0.72365	9.99238	2	18	9 10.5 10.4
43	9.26940	67	9.27704	69	0.72296	9.99236	3	17	10 11.7 11.5
44	9.27007	66	9.27773	69	0.72227	9.99233	2	16	20 23.3 23.0
45	9.27073	67	9.27842	69	0.72158	9.99231	3	15	30 35.0 34.5
46	9.27140	66	9.27911	69	0.72089	9.99229	2	14	40 46.7 46.0
47	9.27206	67	9.27980	69	0.72020	9.99226	3	13	50 58.3 57.5
48	9.27273	66	9.28049	68	0.71951	9.99224	2	12	
49	9.27339	66	9.28117	69	0.71883	9.99221	3	11	
50	9.27405	66	9.28186	68	0.71814	9.99219	2	10	
51	9.27471	66	9.28254	69	0.71746	9.99217	3	9	68 67
52	9.27537	65	9.28323	68	0.71677	9.99214	2	8	1 1.1 1.1
53	9.27602	66	9.28391	68	0.71609	9.99212	3	7	2 2.3 2.2
54	9.27668	66	9.28459	68	0.71541	9.99209	2	6	3 3.4 3.4
55	9.27734	65	9.28527	68	0.71473	9.99207	3	5	4 4.5 4.5
56	9.27799	65	9.28595	67	0.71405	9.99204	2	4	5 5.7 5.6
57	9.27864	66	9.28662	68	0.71338	9.99202	3	3	6 6.8 6.7
58	9.27930	65	9.28730	68	0.71270	9.99200	2	2	7 7.9 7.8
59	9.27995	65	9.28798	67	0.71202	9.99197	3	1	8 9.1 8.9
60	9.28060	65	9.28865	68	0.71135	9.99195	2	0	9 10.2 10.1
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.28060	65	9.28565	68	0.71135	9.99195	3	60	
1	9.28125	65	9.28933	67	0.71067	9.99192	2	59	
2	9.28190	64	9.29000	67	0.71000	9.99190	3	58	
3	9.28254	65	9.29067	67	0.70933	9.99187	2	57	68 67
4	9.28319	65	9.29134	67	0.70866	9.99185	3	56	1 1.1 1.1 2 2.3 2.2 3 3.4 3.4 4 4.5 4.5 5 5.7 5.6 6 6.8 6.7 7 7.9 7.8 8 9.1 8.9 9 10.2 10.1 10 11.3 11.2 20 22.7 22.3 30 34.0 33.5 40 45.3 44.7 50 56.7 55.8
5	9.28384	64	9.29201	67	0.70799	9.99182	2	55	
6	9.28448	64	9.29268	67	0.70732	9.99180	3	54	
7	9.28512	65	9.29335	67	0.70665	9.99177	2	53	
8	9.28577	64	9.29402	66	0.70598	9.99175	3	52	
9	9.28641	64	9.29468	67	0.70532	9.99172	2	51	
10	9.28705	64	9.29535	66	0.70465	9.99170	3	50	
11	9.28769	64	9.29601	67	0.70399	9.99167	2	49	
12	9.28833	63	9.29668	66	0.70332	9.99165	3	48	66 65
13	9.28896	64	9.29734	66	0.70266	9.99162	2	47	1 1.1 1.1 2 2.2 2.2 3 3.3 3.3 4 4.4 4.3 5 5.5 5.4 6 6.6 6.5 7 7.7 7.6 8 8.8 8.7 9 9.9 9.8 10 11.0 10.8 20 22.0 21.7 30 33.0 32.5 40 44.0 43.3 50 55.0 54.2
14	9.28960	64	9.29800	66	0.70200	9.99160	3	46	
15	9.29024	63	9.29866	66	0.70134	9.99157	2	45	
16	9.29087	63	9.29932	66	0.70068	9.99155	3	44	
17	9.29150	64	9.29998	66	0.70002	9.99152	2	43	
18	9.29214	63	9.30064	66	0.69936	9.99150	3	42	
19	9.29277	63	9.30130	65	0.69870	9.99147	2	41	
20	9.29340	63	9.30195	66	0.69805	9.99145	3	40	
21	9.29403	63	9.30261	65	0.69739	9.99142	2	39	64 63
22	9.29466	63	9.30326	65	0.69674	9.99140	3	38	1 1.1 1.1 2 2.1 2.1 3 3.2 3.2 4 4.3 4.2 5 5.3 5.3 6 6.4 6.3 7 7.5 7.4 8 8.5 8.4 9 9.6 9.5 10 10.7 10.5 20 21.3 21.0 30 32.0 31.5 40 42.7 42.0 50 53.3 52.5
23	9.29529	62	9.30391	66	0.69609	9.99137	2	37	
24	9.29591	63	9.30457	65	0.69543	9.99135	3	36	
25	9.29654	62	9.30522	65	0.69478	9.99132	2	35	
26	9.29716	63	9.30587	65	0.69413	9.99130	3	34	
27	9.29779	62	9.30652	65	0.69348	9.99127	2	33	
28	9.29841	62	9.30717	65	0.69283	9.99124	3	32	
29	9.29903	63	9.30782	64	0.69218	9.99122	2	31	
30	9.29966	62	9.30846	65	0.69154	9.99119	3	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

No.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.29966		9.30846		0.69154	9.99119		30	
31	9.30028	62	9.30911	65	0.69089	9.99117	2	29	
32	9.30090	62	9.30975	64	0.69025	9.99114	3	28	
33	9.30151	61	9.31040	65	0.68960	9.99112	2	27	64 63
34	9.30213	62	9.31104	64	0.68896	9.99109	3	26	1 1.1 1.1 2 2.1 2.1 3 3.2 3.2 4 4.3 4.2 5 5.3 5.3 6 6.4 6.3 7 7.5 7.4 8 8.5 8.4 9 9.6 9.5 10 10.7 10.5 20 21.3 21.0 30 32.0 31.5 40 42.7 42.0 50 53.3 52.5
35	9.30275		9.31168		0.68832	9.99106		25	
36	9.30336	61	9.31238	65	0.68767	9.99104	2	24	
37	9.30398	62	9.31297	64	0.68703	9.99101	3	23	
38	9.30459	61	9.31361	64	0.68639	9.99099	2	22	
39	9.30521	62	9.31426	64	0.68575	9.99096	3	21	
40	9.30582	61	9.31489	64	0.68511	9.99093	3	20	
41	9.30643	61	9.31552	63	0.68448	9.99091	2	19	
42	9.30704	61	9.31616	64	0.68384	9.99088	3	18	
43	9.30765	61	9.31679	63	0.68321	9.99086	2	17	62 61
44	9.30826	61	9.31743	64	0.68257	9.99083	3	16	1 1.0 1.0 2 2.1 2.0 3 3.1 3.1 4 4.1 4.1 5 5.2 5.1 6 6.2 6.1 7 7.2 7.1 8 8.3 8.1 9 9.3 9.2 10 10.3 10.2 20 20.7 20.3 30 31.0 30.5 40 41.3 40.7 50 51.7 50.8
45	9.30887	60	9.31806	64	0.68194	9.99080	2	15	
46	9.30947	61	9.31870	63	0.68130	9.99078	3	14	
47	9.31008	60	9.31933	63	0.68067	9.99075	3	13	
48	9.31068	61	9.31996	63	0.68004	9.99072	2	12	
49	9.31129	60	9.32059	63	0.67941	9.99070	3	11	
50	9.31189	61	9.32122	63	0.67878	9.99067	3	10	
51	9.31250	60	9.32185	63	0.67815	9.99064	2	9	60 59
52	9.31310	60	9.32248	63	0.67752	9.99062	3	8	1 1.0 1.0 2 2.0 2.0 3 3.0 3.0 4 4.0 3.9 5 5.0 4.9 6 6.0 5.9 7 7.0 6.9 8 8.0 7.9 9 9.0 8.9 10 10.0 9.8 20 20.0 19.7 30 30.0 29.5 40 40.0 39.3 50 50.0 49.2
53	9.31370	60	9.32311	62	0.67689	9.99059	3	7	
54	9.31430	60	9.32373	63	0.67627	9.99056	2	6	
55	9.31490	59	9.32436	62	0.67564	9.99054	3	5	
56	9.31549	60	9.32498	63	0.67502	9.99051	3	4	
57	9.31609	60	9.32561	62	0.67439	9.99048	2	3	
58	9.31669	59	9.32623	62	0.67377	9.99046	3	2	
59	9.31728	60	9.32685	62	0.67315	9.99043	3	1	
60	9.31788	59	9.32747	63	0.67253	9.99040	2	0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Mia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.31788		9.32747		0.67253	9.99040		60	
1	9.31847	59	9.32810	63	0.67190	9.99088	2	59	
2	9.31907	60	9.32872	62	0.67128	9.99035	3	58	
3	9.31966	59	9.32933	61	0.67067	9.99032	3	57	63 62
4	9.32025	59	9.32995	62	0.67005	9.99030	2	56	1 1.1 1.0 2 2.1 2.1 3 3.2 3.1 4 4.2 4.1 5 5.3 5.2 6 6.3 6.2 7 7.4 7.2 8 8.4 8.3 9 9.5 9.3 10 10.5 10.3 20 21.0 20.7 30 31.5 31.0 40 42.0 41.3 50 52.5 51.7
5	9.32084	59	9.33057	62	0.66943	9.99027	3	55	
6	9.32143	59	9.33119	61	0.66881	9.99024	2	54	
7	9.32202	59	9.33180	62	0.66820	9.99022	3	53	
8	9.32261	58	9.33242	61	0.66758	9.99019	3	52	
9	9.32319	59	9.33303	62	0.66697	9.99016	3	51	
10	9.32378	59	9.33365	61	0.66635	9.99013	2	50	
11	9.32437	58	9.33426	61	0.66574	9.99011	3	49	61 60
12	9.32495	58	9.33487	61	0.66513	9.99008	3	48	1 1.0 1.0 2 2.0 2.0 3 3.1 3.0 4 4.1 4.0 5 5.1 5.0 6 6.1 6.0 7 7.1 7.0 8 8.1 8.0 9 9.2 9.0 10 10.2 10.0 20 20.3 20.0 30 30.5 30.0 40 40.7 40.0 50 50.8 50.0
13	9.32553	58	9.33548	61	0.66452	9.99005	3	47	
14	9.32612	58	9.33609	61	0.66391	9.99002	2	46	
15	9.32670	58	9.33670	61	0.66330	9.99000	3	45	
16	9.32728	58	9.33731	61	0.66269	9.98997	3	44	
17	9.32786	58	9.33792	61	0.66208	9.98994	3	43	
18	9.32844	58	9.33853	60	0.66147	9.98991	2	42	
19	9.32902	58	9.33913	61	0.66087	9.98989	3	41	
20	9.32960	58	9.33974	60	0.66026	9.98986	3	40	
21	9.33018	57	9.34034	61	0.65966	9.98983	3	39	59 58
22	9.33075	58	9.34095	60	0.65905	9.98980	2	38	1 1.0 1.0 2 2.0 1.9 3 3.0 2.9 4 3.9 3.9 5 4.9 4.8 6 5.9 5.8 7 6.9 6.8 8 7.9 7.7 9 8.9 8.7 10 9.8 9.7 20 19.7 19.3 30 29.5 29.0 40 39.3 38.7 50 49.2 48.3
23	9.33133	57	9.34155	60	0.65845	9.98978	3	37	
24	9.33190	58	9.34215	61	0.65785	9.98975	3	36	
25	9.33248	57	9.34276	60	0.65724	9.98972	3	35	
26	9.33305	57	9.34336	60	0.65664	9.98969	2	34	
27	9.33362	58	9.34396	60	0.65604	9.98967	3	33	
28	9.33420	57	9.34456	60	0.65544	9.98964	3	32	
29	9.33477	57	9.34516	60	0.65484	9.98961	3	31	
30	9.33534	57	9.34576	59	0.65424	9.98958	3	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mia.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.33534		9.34576		0.65424	9.98958		30	
31	9.33591	57	9.34635	59	0.65365	9.98955	3	29	
32	9.33647	56	9.34695	00	0.65305	9.98953	2	28	
33	9.33704	57	9.34755	00	0.65245	9.98950	3	27	59 58
34	9.33761	57	9.34814	59	0.65186	9.98947	3	26	1 1.0 1.0
35	9.33818	56	9.34874	00	0.65126	9.98944	3	25	2 2.0 1.9
36	9.33874	57	9.34933	59	0.65067	9.98941	3	24	3 3.0 2.9
37	9.33931	56	9.34992	59	0.65008	9.98938	3	23	4 3.9 3.9
38	9.33987	56	9.35051	00	0.64949	9.98936	2	22	5 4.9 4.8
39	9.34043	57	9.35111	59	0.64889	9.98933	3	21	6 5.9 5.8
40	9.34100	56	9.35170	59	0.64830	9.98930	3	20	7 6.9 6.8
41	9.34156	56	9.35229	59	0.64771	9.98927	3	19	8 7.9 7.7
42	9.34212	56	9.35288	59	0.64712	9.98924	3	18	9 8.9 8.7
43	9.34268	56	9.35347	58	0.64653	9.98921	2	17	10 9.8 9.7
44	9.34324	56	9.35405	59	0.64595	9.98919	3	16	20 19.7 19.3
45	9.34380	55	9.35464	59	0.64536	9.98916	3	15	30 29.5 29.0
46	9.34436	55	9.35523	58	0.64477	9.98913	3	14	40 39.3 38.7
47	9.34491	56	9.35581	59	0.64419	9.98910	3	13	50 49.2 48.3
48	9.34547	55	9.35640	58	0.64360	9.98907	3	12	
49	9.34602	56	9.35698	59	0.64302	9.98904	3	11	
50	9.34658	55	9.35757	58	0.64243	9.98901	3	10	
51	9.34713	56	9.35815	58	0.64185	9.98898	2	9	55 54
52	9.34769	55	9.35873	58	0.64127	9.98896	3	8	1 0.9 0.9
53	9.34824	55	9.35931	58	0.64069	9.98893	3	7	2 1.8 1.8
54	9.34879	55	9.35989	58	0.64011	9.98890	3	6	3 2.8 2.7
55	9.34934	55	9.36047	58	0.63953	9.98887	3	5	4 3.7 3.6
56	9.34989	55	9.36105	58	0.63895	9.98884	3	4	5 4.6 4.5
57	9.35044	55	9.36163	58	0.63837	9.98881	3	3	6 5.5 5.4
58	9.35099	55	9.36221	58	0.63779	9.98878	3	2	7 6.4 6.3
59	9.35154	55	9.36279	58	0.63721	9.98875	3	1	8 7.3 7.2
60	9.35209	54	9.36336	57	0.63664	9.98872	3	0	9 8.3 8.1
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.35209		9.36336		0.63664	9.98672		60	
1	9.35263	54	9.36394	58	0.63606	9.98869	3	59	
2	9.35318	55	9.36452	58	0.63548	9.98867	2	58	
3	9.35373	55	9.36509	57	0.63491	9.98864	3	57	58 57
4	9.35427	54	9.36566	57	0.63434	9.98861	3	56	1 1.0 1.0
5	9.35481	54	9.36624	58	0.63376	9.98858	3	55	2 1.9 1.9
6	9.35536	55	9.36681	57	0.63319	9.98855	3	54	3 2.9 2.9
7	9.35590	54	9.36738	57	0.63262	9.98852	3	53	4 3.9 3.8
8	9.35644	54	9.36795	57	0.63205	9.98849	3	52	5 4.8 4.8
9	9.35698	54	9.36852	57	0.63148	9.98846	3	51	6 5.8 5.7
10	9.35752	54	9.36909	57	0.63091	9.98843	3	50	7 6.8 6.7
11	9.35806	54	9.36966	57	0.63034	9.98840	3	49	8 7.7 7.6
12	9.35860	54	9.37023	57	0.62977	9.98837	3	48	9 8.7 8.6
13	9.35914	54	9.37080	57	0.62920	9.98834	3	47	10 9.7 9.5
14	9.35968	54	9.37137	57	0.62863	9.98831	3	46	20 19.3 19.0
15	9.36022	53	9.37193	57	0.62807	9.98828	3	45	30 29.0 28.5
16	9.36075	53	9.37250	57	0.62750	9.98825	3	44	40 38.7 38.0
17	9.36129	53	9.37306	57	0.62694	9.98822	3	43	50 48.3 47.5
18	9.36182	53	9.37363	56	0.62637	9.98819	3	42	
19	9.36236	53	9.37419	57	0.62581	9.98816	3	41	
20	9.36289	53	9.37476	56	0.62524	9.98813	3	40	
21	9.36342	53	9.37532	56	0.62468	9.98810	3	39	56 55
22	9.36395	54	9.37588	56	0.62412	9.98807	3	38	1 0.9 0.9
23	9.36449	53	9.37644	56	0.62356	9.98804	3	37	2 1.8 1.8
24	9.36502	53	9.37700	56	0.62300	9.98801	3	36	3 2.7 2.7
25	9.36555	53	9.37756	56	0.62244	9.98798	3	35	4 3.6 3.5
26	9.36608	52	9.37812	56	0.62188	9.98795	3	34	5 4.5 4.4
27	9.36660	52	9.37868	56	0.62132	9.98792	3	33	6 5.4 5.3
28	9.36713	53	9.37924	56	0.62076	9.98789	3	32	7 6.3 6.2
29	9.36766	53	9.37980	55	0.62020	9.98786	3	31	8 7.2 7.1
30	9.36819	52	9.38035	56	0.61965	9.98783	3	30	9 8.1 8.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.36819	52	9.38035	56	0.61985	9.98783	3	30	
31	9.36871	53	9.38091	56	0.61909	9.98780	3	29	
32	9.36924	53	9.38147	55	0.61853	9.98777	3	28	
33	9.36976	52	9.38202	55	0.61798	9.98774	3	27	56 55
34	9.37028	53	9.38257	55	0.61748	9.98771	3	26	1 0.9 0.9 2 1.9 1.8 3 2.8 2.8 4 3.7 3.7 5 4.7 4.6
35	9.37081	52	9.38313	55	0.61687	9.98768	3	25	6 5.6 5.5 7 6.5 6.4 8 7.5 7.3 9 8.4 8.3 10 9.3 9.2
36	9.37133	52	9.38368	55	0.61632	9.98765	3	24	20 12.7 12.3 30 28.0 27.5 40 37.3 36.7 50 46.7 45.8
37	9.37185	52	9.38423	56	0.61577	9.98762	3	23	
38	9.37237	52	9.38479	55	0.61521	9.98759	3	22	
39	9.37289	52	9.38534	55	0.61466	9.98756	3	21	
40	9.37341	52	9.38589	55	0.61411	9.98753	3	20	
41	9.37393	52	9.38644	55	0.61356	9.98750	3	19	
42	9.37445	52	9.38699	55	0.61301	9.98746	4	18	54 53
43	9.37497	52	9.38754	55	0.61246	9.98743	3	17	1 0.9 0.9 2 1.8 1.8 3 2.7 2.7 4 3.6 3.5 5 4.5 4.4
44	9.37549	51	9.38808	54	0.61192	9.98740	3	16	6 5.4 5.3 7 6.3 6.2 8 7.2 7.1 9 8.1 8.0
45	9.37600	52	9.38863	55	0.61137	9.98737	3	15	10 9.0 8.8 20 18.0 17.7 30 27.0 26.5 40 36.0 35.3 50 45.0 44.2
46	9.37652	51	9.38918	54	0.61082	9.98734	3	14	
47	9.37703	52	9.38972	55	0.61028	9.98731	3	13	
48	9.37755	51	9.39027	55	0.60973	9.98728	3	12	
49	9.37806	52	9.39082	54	0.60918	9.98725	3	11	
50	9.37858	51	9.39136	54	0.60864	9.98722	3	10	
51	9.37909	51	9.39190	55	0.60810	9.98719	4	9	52 51
52	9.37960	51	9.39245	54	0.60755	9.98715	3	8	1 0.9 0.9 2 1.7 1.7 3 2.6 2.6 4 3.5 3.4 5 4.3 4.3
53	9.38011	51	9.39299	54	0.60701	9.98712	3	7	6 5.2 5.1 7 6.1 6.0 8 6.9 6.8 9 7.8 7.7 10 8.7 8.5
54	9.38062	51	9.39353	54	0.60647	9.98709	3	6	20 17.3 17.0 30 26.0 25.5 40 34.7 34.0 50 43.3 42.5
55	9.38113	51	9.39407	54	0.60593	9.98706	3	5	
56	9.38164	51	9.39461	54	0.60539	9.98703	3	4	
57	9.38215	51	9.39515	54	0.60485	9.98700	3	3	
58	9.38266	51	9.39569	54	0.60431	9.98697	3	2	
59	9.38317	51	9.39623	54	0.60377	9.98694	3	1	
60	9.38368	51	9.39677	54	0.60323	9.98690	4	0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

No.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.38368	50	9.39677	54	0.60323	9.98690	3	60	
1	9.38418	51	9.39731	54	0.60269	9.98687	3	59	
2	9.38469	50	9.39785	53	0.60215	9.98684	3	58	
3	9.38519	51	9.39838	54	0.60162	9.98681	3	57	54 53
4	9.38570	50	9.39892	53	0.60108	9.98678	3	56	1 0.9 0.9
5	9.38620	50	9.39945	54	0.60055	9.98675	3	55	2 1.8 1.8
6	9.38670	51	9.39999	53	0.60001	9.98671	3	54	3 2.7 2.7
7	9.38721	50	9.40052	54	0.59948	9.98668	3	53	4 3.6 3.5
8	9.38771	50	9.40106	53	0.59894	9.98665	3	52	5 4.5 4.4
9	9.38821	50	9.40159	53	0.59841	9.98662	3	51	6 5.4 5.3
10	9.38871	50	9.40212	54	0.59788	9.98659	3	50	7 6.3 6.2
11	9.38921	50	9.40266	53	0.59734	9.98656	3	49	8 7.2 7.1
12	9.38971	50	9.40319	53	0.59681	9.98652	3	48	9 8.1 8.0
13	9.39021	50	9.40372	53	0.59628	9.98649	3	47	10 9.0 8.8
14	9.39071	50	9.40425	53	0.59575	9.98646	3	46	20 18.0 17.7
15	9.39121	49	9.40478	53	0.59522	9.98643	3	45	30 27.0 26.5
16	9.39170	50	9.40531	53	0.59469	9.98640	3	44	40 36.0 35.3
17	9.39220	50	9.40584	53	0.59416	9.98636	3	43	50 45.0 44.2
18	9.39270	49	9.40636	53	0.59364	9.98633	3	42	
19	9.39319	50	9.40689	53	0.59311	9.98630	3	41	
20	9.39369	49	9.40742	53	0.59258	9.98627	3	40	
21	9.39418	49	9.40795	53	0.59205	9.98623	3	39	52 51
22	9.39467	50	9.40847	53	0.59153	9.98620	3	38	1 0.9 0.9
23	9.39517	49	9.40900	53	0.59100	9.98617	3	37	2 1.7 1.7
24	9.39566	49	9.40952	53	0.59048	9.98614	3	36	3 2.6 2.6
25	9.39615	49	9.41005	53	0.58995	9.98610	3	35	4 3.5 3.4
26	9.39664	49	9.41057	53	0.58943	9.98607	3	34	5 4.3 4.3
27	9.39713	49	9.41109	53	0.58891	9.98604	3	33	6 5.2 5.1
28	9.39762	49	9.41161	53	0.58839	9.98601	3	32	7 6.1 6.0
29	9.39811	49	9.41214	53	0.58786	9.98597	3	31	8 6.9 6.8
30	9.39860	49	9.41266	53	0.58734	9.98594	3	30	9 7.8 7.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	No.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.39860		9.41266		0.58734	9.98594		30	
31	9.39909	49	9.41318	52	0.58682	9.98591	3	29	
32	9.39958	49	9.41370	52	0.58630	9.98588	3	28	
33	9.40006	48	9.41422	52	0.58578	9.98584	4	27	52 51
34	9.40055	49	9.41474	52	0.58526	9.98581	3	26	1 0.9 0.9 2 1.7 1.7 3 2.6 2.6 4 3.5 3.4 5 4.3 4.3 6 5.2 5.1 7 6.1 6.0 8 6.9 6.8 9 7.8 7.7 10 8.7 8.5 20 17.3 17.0 30 26.0 25.5 40 34.7 34.0 50 43.3 42.5
35	9.40103	49	9.41526	52	0.58474	9.98578	4	25	
36	9.40152	48	9.41578	51	0.58422	9.98574	3	24	
37	9.40200	49	9.41629	52	0.58371	9.98571	3	23	
38	9.40249	48	9.41681	52	0.58319	9.98568	3	22	
39	9.40297	49	9.41733	51	0.58267	9.98565	4	21	
40	9.40346	48	9.41784	52	0.58216	9.98561	3	20	
41	9.40394	48	9.41836	51	0.58164	9.98558	3	19	
42	9.40442	48	9.41887	52	0.58113	9.98555	4	18	50 49
43	9.40490	48	9.41939	51	0.58061	9.98551	3	17	1 0.8 0.8 2 1.7 1.6 3 2.5 2.5 4 3.3 3.3 5 4.2 4.1 6 5.0 4.9 7 5.8 5.7 8 6.7 6.5 9 7.5 7.4 10 8.3 8.2 20 16.7 16.3 30 25.0 24.5 40 33.3 32.7 50 41.7 40.8
44	9.40538	48	9.41990	51	0.58010	9.98548	3	16	
45	9.40586	48	9.42041	52	0.57959	9.98545	4	15	
46	9.40634	48	9.42093	51	0.57907	9.98541	3	14	
47	9.40682	48	9.42144	51	0.57856	9.98538	3	13	
48	9.40730	48	9.42195	51	0.57805	9.98535	4	12	
49	9.40778	47	9.42246	51	0.57754	9.98531	3	11	
50	9.40825	48	9.42297	51	0.57703	9.98528	3	10	
51	9.40873	48	9.42348	51	0.57652	9.98525	4	9	48 47
52	9.40921	47	9.42399	51	0.57601	9.98521	3	8	1 0.8 0.8 2 1.6 1.6 3 2.4 2.4 4 3.2 3.1 5 4.0 3.9 6 4.8 4.7 7 5.6 5.5 8 6.4 6.3 9 7.2 7.1 10 8.0 7.8 20 16.0 15.7 30 24.0 23.5 40 32.0 31.3 50 40.0 39.2
53	9.40968	48	9.42450	51	0.57550	9.98518	3	7	
54	9.41016	47	9.42501	51	0.57499	9.98515	4	6	
55	9.41063	48	9.42552	51	0.57448	9.98511	3	5	
56	9.41111	47	9.42603	50	0.57397	9.98508	3	4	
57	9.41158	47	9.42653	51	0.57347	9.98505	4	3	
58	9.41205	47	9.42704	51	0.57296	9.98501	3	2	
59	9.41252	48	9.42755	50	0.57245	9.98498	4	1	
60	9.41300		9.42805		0.57195	9.98494		0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.41300		9.42805		0.57195	9.98494		60	
1	9.41347	47	9.42856	51	0.57144	9.98491	3	59	
2	9.41394	47	9.42906	50	0.57094	9.98488	3	58	
3	9.41441	47	9.42957	51	0.57043	9.98484	4	57	51 50
4	9.41488	47	9.43007	50	0.56993	9.98481	3	56	1 0.9 0.8 2 1.7 1.7 3 2.6 2.5 4 3.4 3.3 5 4.3 4.2 6 5.1 5.0 7 6.0 5.8 8 6.8 6.7 9 7.7 7.5 10 8.5 8.3 20 17.0 16.7 30 25.5 25.0 40 34.0 33.3 50 42.5 41.7
5	9.41535		9.43057		0.56943	9.98477		55	
6	9.41582	47	9.43108	51	0.56892	9.98474	3	54	
7	9.41628	46	9.43158	50	0.56842	9.98471	3	53	
8	9.41675	47	9.43208	50	0.56792	9.98467	4	52	
9	9.41722	47	9.43258	50	0.56742	9.98464	3	51	
10	9.41768	46	9.43308	50	0.56692	9.98460	4	50	
11	9.41815	47	9.43358	50	0.56642	9.98457	3	49	
12	9.41861	46	9.43408	50	0.56592	9.98453	4	48	49 48
13	9.41908	47	9.43458	50	0.56542	9.98450	3	47	1 0.8 0.8 2 1.6 1.6 3 2.5 2.4 4 3.3 3.2 5 4.1 4.0 6 4.9 4.8 7 5.7 5.6 8 6.5 6.4 9 7.4 7.2 10 8.2 8.0 20 16.3 16.0 30 24.5 24.0 40 32.7 32.0 50 40.8 40.0
14	9.41954	46	9.43508	50	0.56492	9.98447	4	46	
15	9.42001	47	9.43558	49	0.56442	9.98443	3	45	
16	9.42047	46	9.43607	50	0.56393	9.98440	4	44	
17	9.42093	47	9.43657	50	0.56343	9.98436	3	43	
18	9.42140	46	9.43707	49	0.56293	9.98433	4	42	
19	9.42186	46	9.43756	50	0.56244	9.98429	3	41	
20	9.42232	46	9.43806	49	0.56194	9.98426	4	40	
21	9.42278	46	9.43855	50	0.56145	9.98422	3	39	
22	9.42324	46	9.43905	49	0.56095	9.98419	4	38	47 46
23	9.42370	46	9.43954	50	0.56046	9.98415	3	37	1 0.8 0.8 2 1.6 1.5 3 2.4 2.3 4 3.1 3.1 5 3.9 3.8 6 4.7 4.6 7 5.5 5.4 8 6.3 6.1 9 7.1 6.9 10 7.8 7.7 20 15.7 15.3 30 23.5 23.0 40 31.3 30.7 50 39.2 38.3
24	9.42416	45	9.44004	49	0.55996	9.98412	3	36	
25	9.42461	46	9.44053	49	0.55947	9.98409	4	35	
26	9.42507	46	9.44102	49	0.55898	9.98405	3	34	
27	9.42553	46	9.44151	50	0.55849	9.98402	4	33	
28	9.42599	45	9.44201	49	0.55799	9.98398	3	32	
29	9.42644	46	9.44250	49	0.55750	9.98395	4	31	
30	9.42690	45	9.44299	49	0.55701	9.98391	3	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.42690	45	9.44299	49	0.55701	9.98391	3	30	
31	9.42735	46	9.44348	49	0.55652	9.98388	4	29	
32	9.42781	45	9.44397	49	0.55603	9.98384	3	28	
33	9.42826	46	9.44446	49	0.55554	9.98381	4	27	49 48
34	9.42872	45	9.44495	49	0.55505	9.98377	4	26	1 0.8 0.8
35	9.42917	45	9.44544	48	0.55456	9.98373	3	25	2 1.6 1.6
36	9.42962	46	9.44592	49	0.55408	9.98370	4	24	3 2.5 2.4
37	9.43008	45	9.44641	49	0.55359	9.98366	3	23	4 3.3 3.2
38	9.43053	45	9.44690	48	0.55310	9.98363	4	22	5 4.1 4.0
39	9.43098	45	9.44738	49	0.55262	9.98359	3	21	6 4.9 4.8
40	9.43143	45	9.44787	49	0.55213	9.98356	4	20	7 5.7 5.6
41	9.43188	45	9.44836	48	0.55164	9.98352	3	19	8 6.5 6.4
42	9.43233	45	9.44884	49	0.55116	9.98349	4	18	9 7.4 7.2
43	9.43278	45	9.44933	48	0.55067	9.98345	3	17	10 8.2 8.0
44	9.43323	44	9.44981	48	0.55019	9.98342	4	16	20 16.3 16.0
45	9.43367	45	9.45029	49	0.54971	9.98338	3	15	30 24.5 24.0
46	9.43412	45	9.45078	48	0.54922	9.98334	4	14	40 32.7 32.0
47	9.43457	45	9.45126	48	0.54874	9.98331	3	13	50 40.8 40.0
48	9.43502	44	9.45174	48	0.54826	9.98327	4	12	
49	9.43546	45	9.45222	49	0.54778	9.98324	3	11	
50	9.43591	44	9.45271	48	0.54729	9.98320	4	10	
51	9.43635	45	9.45319	48	0.54681	9.98317	3	9	47 46
52	9.43680	44	9.45367	48	0.54633	9.98313	4	8	1 0.8 0.8
53	9.43724	45	9.45415	48	0.54585	9.98309	3	7	2 1.6 1.6
54	9.43769	44	9.45463	48	0.54537	9.98306	4	6	3 2.4 2.3
55	9.43813	44	9.45511	48	0.54489	9.98302	3	5	4 3.1 3.1
56	9.43857	44	9.45559	47	0.54441	9.98299	4	4	5 3.9 3.8
57	9.43901	45	9.45606	48	0.54394	9.98295	3	3	6 4.7 4.6
58	9.43946	44	9.45654	48	0.54346	9.98291	4	2	7 5.5 5.4
59	9.43990	44	9.45702	48	0.54298	9.98288	3	1	8 6.3 6.1
60	9.44034	44	9.45750	48	0.54250	9.98284	4	0	9 7.1 6.9
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.44034		9.45750		0.54250	9.98284		60	
1	9.44078	44	9.45797	47	0.54203	9.98281	3	59	
2	9.44122	44	9.45845	48	0.54155	9.98277	4	58	
3	9.44166	44	9.45892	47	0.54108	9.98273	4	57	48 47
4	9.44210	44	9.45940	48	0.54060	9.98270	3	56	1 0.8 0.8 2 1.6 1.6 3 2.4 2.4 4 3.2 3.1 5 4.0 3.9 6 4.8 4.7 7 5.6 5.5 8 6.4 6.3 9 7.2 7.1 10 8.0 7.8
5	9.44253	43	9.45987	47	0.54013	9.98266	4	55	20 16.0 15.7 30 24.0 23.5 40 32.0 31.3 50 40.0 39.2
6	9.44297	44	9.46035	48	0.53965	9.98262	4	54	
7	9.44341	44	9.46082	47	0.53918	9.98259	3	53	
8	9.44385	44	9.46130	48	0.53870	9.98255	4	52	
9	9.44428	43	9.46177	47	0.53823	9.98251	4	51	
10	9.44472	44	9.46224	47	0.53776	9.98248	3	50	
11	9.44516	44	9.46271	47	0.53729	9.98244	4	49	
12	9.44559	43	9.46319	48	0.53681	9.98240	4	48	46 45
13	9.44602	43	9.46366	47	0.53634	9.98237	3	47	1 0.8 0.8 2 1.5 1.5 3 2.3 2.3 4 3.1 3.0 5 3.8 3.8 6 4.6 4.5 7 5.4 5.3 8 6.1 6.0 9 6.9 6.8 10 7.7 7.5
14	9.44646	44	9.46413	47	0.53587	9.98233	4	46	20 15.3 15.0 30 23.0 22.5 40 30.7 30.0 50 38.3 37.5
15	9.44689	43	9.46460	47	0.53540	9.98229	4	45	
16	9.44733	44	9.46507	47	0.53493	9.98226	3	44	
17	9.44776	43	9.46554	47	0.53446	9.98222	4	43	
18	9.44819	43	9.46601	47	0.53399	9.98218	4	42	
19	9.44862	43	9.46648	47	0.53352	9.98215	3	41	
20	9.44905	43	9.46694	46	0.53306	9.98211	4	40	
21	9.44948	43	9.46741	47	0.53259	9.98207	4	39	44 43
22	9.44992	44	9.46788	47	0.53212	9.98204	3	38	1 0.7 0.7 2 1.5 1.4 3 2.2 2.2 4 2.9 2.9 5 3.7 3.6 6 4.4 4.3 7 5.1 5.0 8 5.9 5.7 9 6.6 6.5 10 7.3 7.2
23	9.45035	43	9.46835	47	0.53165	9.98200	4	37	20 14.7 14.3 30 22.0 21.5 40 29.3 28.7 50 36.7 35.8
24	9.45077	42	9.46881	46	0.53119	9.98196	4	36	
25	9.45120	43	9.46928	47	0.53072	9.98192	4	35	
26	9.45163	43	9.46975	47	0.53025	9.98189	3	34	
27	9.45206	43	9.47021	46	0.52979	9.98185	4	33	
28	9.45249	43	9.47068	47	0.52932	9.98181	4	32	
29	9.45292	43	9.47114	46	0.52886	9.98177	4	31	
30	9.45334	42	9.47160	46	0.52840	9.98174	3	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.45334		9.47160		0.52340	9.98174		30	
31	9.45377	43	9.47207	47	0.52793	9.98170	4	29	
32	9.45419	42	9.47253	46	0.52747	9.98166	4	28	
33	9.45462	43	9.47299	46	0.52701	9.98162	4	27	46 45
34	9.45504	42	9.47346	47	0.52654	9.98159	3	26	1 0.8 0.8 2 1.5 1.5 3 2.3 2.3 4 3.1 3.0 5 3.8 3.8 6 4.6 4.5 7 5.4 5.3 8 6.1 6.0 9 6.9 6.8 10 7.7 7.5 20 15.3 15.0 30 23.0 22.5 40 30.7 30.0 50 38.3 37.5
35	9.45547	43	9.47392	46	0.52608	9.98155	4	25	
36	9.45589	42	9.47438	46	0.52562	9.98151	4	24	
37	9.45632	43	9.47484	46	0.52516	9.98147	4	23	
38	9.45674	42	9.47530	46	0.52470	9.98144	3	22	
39	9.45716	42	9.47576	46	0.52424	9.98140	4	21	
40	9.45758	42	9.47622	46	0.52378	9.98136	4	20	
41	9.45801	43	9.47668	46	0.52332	9.98132	4	19	
42	9.45843	42	9.47714	46	0.52286	9.98129	3	18	44 43
43	9.45885	42	9.47760	46	0.52240	9.98125	4	17	1 0.7 0.7 2 1.5 1.4 3 2.2 2.2 4 2.9 2.9 5 3.7 3.6 6 4.4 4.3 7 5.1 5.0 8 5.9 5.7 9 6.6 6.5 10 7.3 7.2 20 14.7 14.3 30 22.0 21.5 40 29.3 28.7 50 36.7 35.8
44	9.45927	42	9.47806	46	0.52194	9.98121	4	16	
45	9.45969	42	9.47852	46	0.52148	9.98117	4	15	
46	9.46011	42	9.47897	45	0.52103	9.98113	4	14	
47	9.46053	42	9.47943	46	0.52057	9.98110	3	13	
48	9.46095	42	9.47989	46	0.52011	9.98106	4	12	
49	9.46136	41	9.48035	46	0.51965	9.98102	4	11	
50	9.46178	42	9.48080	45	0.51920	9.98098	4	10	
51	9.46220	42	9.48126	46	0.51874	9.98094	4	9	42 41
52	9.46262	42	9.48171	45	0.51829	9.98090	4	8	1 0.7 0.7 2 1.4 1.4 3 2.1 2.1 4 2.8 2.7 5 3.5 3.4 6 4.2 4.1 7 4.9 4.8 8 5.6 5.5 9 6.3 6.2 10 7.0 6.8 20 14.0 13.7 30 21.0 20.5 40 28.0 27.3 50 35.0 34.2
53	9.46303	41	9.48217	46	0.51783	9.98087	3	7	
54	9.46345	42	9.48262	45	0.51738	9.98083	4	6	
55	9.46386	41	9.48307	45	0.51693	9.98079	4	5	
56	9.46428	42	9.48353	46	0.51647	9.98075	4	4	
57	9.46469	42	9.48398	45	0.51602	9.98071	4	3	
58	9.46511	41	9.48443	46	0.51557	9.98067	4	2	
59	9.46552	42	9.48489	45	0.51511	9.98063	4	1	
60	9.46594	41	9.48534	45	0.51466	9.98060	3	0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

in.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.46594	41	9.48534	45	0.51466	9.98060	4	60	
1	9.46635	41	9.48579	45	0.51421	9.98056	4	59	
2	9.46676	41	9.48624	45	0.51376	9.98052	4	58	
3	9.46717	41	9.48669	45	0.51331	9.98048	4	57	45 44
4	9.46758	42	9.48714	45	0.51286	9.98044	4	56	1 0.8 0.7 2 1.5 1.5 3 2.3 2.2 4 3.0 2.9 5 3.8 3.7
5	9.46800	41	9.48759	45	0.51241	9.98040	4	55	6 4.5 4.4 7 5.3 5.1 8 6.0 5.9 9 6.8 6.6
6	9.46841	41	9.48804	45	0.51196	9.98036	4	54	10 7.5 7.3 20 15.0 14.7
7	9.46882	41	9.48849	45	0.51151	9.98032	3	53	30 22.5 22.0 40 30.0 29.3
8	9.46923	41	9.48894	45	0.51106	9.98029	4	52	50 37.5 36.7
9	9.46964	41	9.48939	45	0.51061	9.98025	4	51	
10	9.47005	40	9.48984	45	0.51016	9.98021	4	50	
11	9.47045	41	9.49029	44	0.50971	9.98017	4	49	
12	9.47086	41	9.49073	45	0.50927	9.98013	4	48	43 42
13	9.47127	41	9.49118	45	0.50882	9.98009	4	47	1 0.7 0.7 2 1.4 1.4 3 2.2 2.1
14	9.47168	41	9.49163	44	0.50837	9.98005	4	46	4 2.9 2.8 5 3.6 3.5 6 4.3 4.2 7 5.0 4.9 8 5.7 5.6 9 6.5 6.3
15	9.47209	40	9.49207	45	0.50793	9.98001	4	45	10 7.2 7.0 20 14.3 14.0 30 21.5 21.0 40 28.7 28.0 50 35.8 35.0
16	9.47249	41	9.49252	44	0.50748	9.97997	4	44	
17	9.47290	41	9.49296	45	0.50704	9.97993	4	43	
18	9.47330	41	9.49341	44	0.50659	9.97989	3	42	
19	9.47371	40	9.49385	45	0.50615	9.97986	4	41	
20	9.47411	41	9.49430	44	0.50570	9.97982	4	40	
21	9.47452	40	9.49474	45	0.50526	9.97978	4	39	41 40
22	9.47492	41	9.49519	44	0.50481	9.97974	4	38	1 0.7 0.7 2 1.4 1.3 3 2.1 2.0 4 2.7 2.7 5 3.4 3.3 6 4.1 4.0 7 4.8 4.7 8 5.5 5.3 9 6.2 6.0
23	9.47533	40	9.49563	44	0.50437	9.97970	4	37	10 6.8 6.7 20 13.7 13.3 30 20.5 20.0 40 27.3 26.7 50 34.2 33.3
24	9.47573	40	9.49607	45	0.50393	9.97966	4	36	
25	9.47613	41	9.49652	44	0.50348	9.97962	4	35	
26	9.47654	40	9.49696	44	0.50304	9.97958	4	34	
27	9.47694	40	9.49740	44	0.50260	9.97954	4	33	
28	9.47734	40	9.49784	44	0.50216	9.97950	4	32	
29	9.47774	40	9.49828	44	0.50172	9.97946	4	31	
30	9.47814	40	9.49872	44	0.50128	9.97942	4	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.47814	40	9.49872	44	0.50128	9.97942	4	30	
31	9.47854	40	9.49916	44	0.50084	9.97938	4	29	44 43
32	9.47894	40	9.49960	44	0.50040	9.97934	4	28	1 0.7 0.7
33	9.47934	40	9.50004	44	0.49996	9.97930	4	27	2 1.5 1.4
34	9.47974	40	9.50048	44	0.49952	9.97926	4	26	3 2.2 2.2
		40		44			4	25	4 2.9 2.9
35	9.48014	40	9.50092	44	0.49908	9.97922	4	24	5 3.7 3.6
		40		44			4	23	6 4.4 4.3
36	9.48054	40	9.50136	44	0.49864	9.97918	4	22	7 5.1 5.0
37	9.48094	40	9.50180	44	0.49820	9.97914	4	21	8 5.9 5.7
38	9.48133	40	9.50223	44	0.49777	9.97910	4	20	9 6.6 6.5
39	9.48173	40	9.50267	44	0.49733	9.97906	4	19	10 7.3 7.2
		40		44			4	18	20 14.7 14.3
40	9.48213	40	9.50311	44	0.49689	9.97902	4	17	30 22.0 21.5
		40		44			4	16	40 29.3 28.7
41	9.48252	40	9.50355	43	0.49645	9.97898	4	15	50 36.7 35.8
42	9.48292	40	9.50398	43	0.49602	9.97894	4	14	42 41
43	9.48332	40	9.50442	43	0.49558	9.97890	4	13	1 0.7 0.7
44	9.48371	40	9.50485	43	0.49515	9.97886	4	12	2 1.4 1.4
		40		43			4	11	3 2.1 2.1
45	9.48411	40	9.50529	43	0.49471	9.97882	4	10	4 2.8 2.7
		40		43			4	9	5 3.5 3.4
46	9.48450	40	9.50572	43	0.49428	9.97878	4	8	6 4.2 4.1
47	9.48490	40	9.50616	43	0.49384	9.97874	4	7	7 4.9 4.8
48	9.48529	40	9.50659	43	0.49341	9.97870	4	6	8 5.6 5.5
49	9.48568	40	9.50703	43	0.49297	9.97866	4	5	9 6.3 6.2
		40		43			4	4	10 7.0 6.8
50	9.48607	40	9.50746	43	0.49254	9.97861	4	3	20 14.0 13.7
		40		43			4	2	30 21.0 20.5
51	9.48647	40	9.50789	43	0.49211	9.97857	4	1	40 28.0 27.3
52	9.48686	40	9.50833	43	0.49167	9.97853	4	0	50 35.0 34.2
53	9.48725	40	9.50876	43	0.49124	9.97849	4		
54	9.48764	40	9.50919	43	0.49081	9.97845	4		
		40		43			4		
55	9.48803	40	9.50962	43	0.49038	9.97841	4		
		40		43			4		
56	9.48842	40	9.51005	43	0.48995	9.97837	4		
57	9.48881	40	9.51048	43	0.48952	9.97833	4		
58	9.48920	40	9.51092	43	0.48908	9.97829	4		
59	9.48959	40	9.51135	43	0.48865	9.97825	4		
		40		43			4		
60	9.48998	40	9.51178	43	0.48822	9.97821	4		
		40		43			4		
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.48998	39	9.51178	43	0.48822	9.97821	4	60	
1	9.49037	39	9.51221	43	0.48779	9.97817	5	59	43 42
2	9.49076	39	9.51264	42	0.48736	9.97812	4	58	1 0.7 0.7
3	9.49115	38	9.51306	43	0.48694	9.97808	4	57	2 1.4 1.4
4	9.49153	39	9.51349	43	0.48651	9.97804	4	56	3 2.2 2.1
5	9.49192	39	9.51392	43	0.48608	9.97800	4	55	4 2.9 2.8
6	9.49231	39	9.51435	43	0.48565	9.97796	4	54	5 3.6 3.5
7	9.49269	38	9.51478	42	0.48522	9.97792	4	53	6 4.3 4.2
8	9.49308	39	9.51520	43	0.48480	9.97788	4	52	7 5.0 4.9
9	9.49347	38	9.51563	43	0.48437	9.97784	4	51	8 5.7 5.6
10	9.49385	39	9.51606	42	0.48394	9.97779	5	50	9 6.5 6.3
11	9.49424	38	9.51648	43	0.48352	9.97775	4	49	10 7.2 7.0
12	9.49462	38	9.51691	43	0.48309	9.97771	4	48	20 14.3 14.0
13	9.49500	38	9.51734	43	0.48266	9.97767	4	47	30 21.5 21.0
14	9.49539	39	9.51776	42	0.48224	9.97763	4	46	40 28.7 28.0
15	9.49577	38	9.51819	43	0.48181	9.97759	4	45	50 35.8 35.0
16	9.49615	38	9.51861	42	0.48139	9.97754	5	44	41 39
17	9.49654	39	9.51903	42	0.48097	9.97750	4	43	1 0.7 0.7
18	9.49692	38	9.51946	43	0.48054	9.97746	4	42	2 1.4 1.3
19	9.49730	38	9.51988	42	0.48012	9.97742	4	41	3 2.1 2.0
20	9.49768	38	9.52031	43	0.47969	9.97738	4	40	4 2.7 2.6
21	9.49806	38	9.52073	42	0.47927	9.97734	4	39	5 3.4 3.3
22	9.49844	38	9.52115	42	0.47885	9.97729	5	38	6 4.1 3.9
23	9.49882	38	9.52157	43	0.47843	9.97725	4	37	7 4.8 4.6
24	9.49920	38	9.52200	42	0.47800	9.97721	4	36	8 5.5 5.2
25	9.49958	38	9.52242	43	0.47758	9.97717	4	35	9 6.2 5.9
26	9.49996	38	9.52284	42	0.47716	9.97713	4	34	10 6.8 6.5
27	9.50034	38	9.52326	42	0.47674	9.97708	5	33	20 13.7 13.0
28	9.50072	38	9.52368	42	0.47632	9.97704	4	32	30 20.5 19.5
29	9.50110	38	9.52410	42	0.47590	9.97700	4	31	40 27.3 26.0
30	9.50148	37	9.52452	42	0.47548	9.97696	4	30	50 34.2 32.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
<b>30</b>	<b>9.50148</b>		<b>9.52452</b>		<b>0.47548</b>	<b>9.97696</b>		<b>30</b>	
<b>31</b>	<b>9.50185</b>	37		42			5	<b>29</b>	<b>42 41</b>
<b>32</b>	<b>9.50223</b>	38	<b>9.52494</b>	42	<b>0.47506</b>	<b>9.97691</b>	4	<b>28</b>	1 0.7 0.7
<b>33</b>	<b>9.50261</b>	38	<b>9.52536</b>	42	<b>0.47464</b>	<b>9.97687</b>	4	<b>27</b>	2 1.4 1.4
<b>34</b>	<b>9.50298</b>	37	<b>9.52578</b>	42	<b>0.47422</b>	<b>9.97683</b>	4	<b>26</b>	3 2.1 2.1
		38	<b>9.52620</b>	41	<b>0.47380</b>	<b>9.97679</b>	5	<b>25</b>	4 2.8 2.7
<b>35</b>	<b>9.50336</b>		<b>9.52661</b>		<b>0.47339</b>	<b>9.97674</b>		<b>24</b>	5 3.5 3.4
<b>36</b>	<b>9.50374</b>	37	<b>9.52703</b>	42	<b>0.47297</b>	<b>9.97670</b>	4	<b>23</b>	6 4.2 4.1
<b>37</b>	<b>9.50411</b>	38	<b>9.52745</b>	42	<b>0.47255</b>	<b>9.97666</b>	4	<b>22</b>	7 4.9 4.8
<b>38</b>	<b>9.50449</b>	37	<b>9.52787</b>	42	<b>0.47213</b>	<b>9.97662</b>	5	<b>21</b>	8 5.6 5.5
<b>39</b>	<b>9.50486</b>	38	<b>9.52829</b>	41	<b>0.47171</b>	<b>9.97657</b>	4	<b>20</b>	9 6.3 6.2
<b>40</b>	<b>9.50523</b>		<b>9.52870</b>		<b>0.47130</b>	<b>9.97653</b>		<b>19</b>	10 7.0 6.8
<b>41</b>	<b>9.50561</b>	37	<b>9.52912</b>	42	<b>0.47088</b>	<b>9.97649</b>	4	<b>18</b>	20 14.0 13.7
<b>42</b>	<b>9.50598</b>	38	<b>9.52953</b>	41	<b>0.47047</b>	<b>9.97645</b>	5	<b>17</b>	30 21.0 20.5
<b>43</b>	<b>9.50635</b>	37	<b>9.52995</b>	42	<b>0.47005</b>	<b>9.97640</b>	4	<b>16</b>	40 28.0 27.3
<b>44</b>	<b>9.50673</b>	38	<b>9.53037</b>	41	<b>0.46963</b>	<b>9.97636</b>	4	<b>15</b>	50 35.0 34.2
<b>45</b>	<b>9.50710</b>	37	<b>9.53078</b>	42	<b>0.46922</b>	<b>9.97632</b>	5	<b>14</b>	
<b>46</b>	<b>9.50747</b>	38	<b>9.53120</b>	41	<b>0.46880</b>	<b>9.97628</b>	4	<b>13</b>	<b>39 38</b>
<b>47</b>	<b>9.50784</b>	37	<b>9.53161</b>	42	<b>0.46839</b>	<b>9.97623</b>	5	<b>12</b>	1 0.7 0.6
<b>48</b>	<b>9.50821</b>	38	<b>9.53202</b>	41	<b>0.46798</b>	<b>9.97619</b>	4	<b>11</b>	2 1.3 1.3
<b>49</b>	<b>9.50858</b>	37	<b>9.53244</b>	42	<b>0.46756</b>	<b>9.97615</b>	5	<b>10</b>	3 2.0 1.9
<b>50</b>	<b>9.50896</b>	38	<b>9.53285</b>	41	<b>0.46715</b>	<b>9.97610</b>	4	<b>9</b>	4 2.6 2.5
<b>51</b>	<b>9.50933</b>	37	<b>9.53327</b>	42	<b>0.46673</b>	<b>9.97606</b>	5	<b>8</b>	5 3.3 3.2
<b>52</b>	<b>9.50970</b>	38	<b>9.53368</b>	41	<b>0.46632</b>	<b>9.97602</b>	4	<b>7</b>	6 3.9 3.8
<b>53</b>	<b>9.51007</b>	37	<b>9.53409</b>	42	<b>0.46591</b>	<b>9.97597</b>	5	<b>6</b>	7 4.6 4.4
<b>54</b>	<b>9.51043</b>	38	<b>9.53450</b>	41	<b>0.46550</b>	<b>9.97593</b>	4	<b>5</b>	8 5.2 5.1
<b>55</b>	<b>9.51080</b>	37	<b>9.53492</b>	42	<b>0.46508</b>	<b>9.97589</b>	5	<b>4</b>	9 5.9 5.7
<b>56</b>	<b>9.51117</b>	38	<b>9.53533</b>	41	<b>0.46467</b>	<b>9.97584</b>	4	<b>3</b>	10 6.5 6.3
<b>57</b>	<b>9.51154</b>	37	<b>9.53574</b>	42	<b>0.46426</b>	<b>9.97580</b>	5	<b>2</b>	20 13.0 12.7
<b>58</b>	<b>9.51191</b>	38	<b>9.53615</b>	41	<b>0.46385</b>	<b>9.97576</b>	4	<b>1</b>	30 19.5 19.0
<b>59</b>	<b>9.51227</b>	37	<b>9.53656</b>	42	<b>0.46344</b>	<b>9.97571</b>	5	<b>0</b>	40 26.0 25.3
<b>60</b>	<b>9.51264</b>	38	<b>9.53697</b>	41	<b>0.46303</b>	<b>9.97567</b>	4		50 32.5 31.7
		37		41					<b>37 36</b>
		38		41					1 0.6 0.6
		39		41					2 1.2 1.2
		40		42					3 1.9 1.8
		41		42					4 2.5 2.4
		42		41					5 3.1 3.0
		43		41					6 3.7 3.6
		44		41					7 4.3 4.2
		45		41					8 4.9 4.8
		46		42					9 5.6 5.4
		47		42					10 6.2 6.0
		48		41					20 12.3 12.0
		49		41					30 18.5 18.0
		50		41					40 24.7 24.0
		51		41					50 30.8 30.0
		52		41					<b>4 5</b>
		53		41					10 0.7 0.8
		54		41					20 1.3 1.7
		55		41					30 2.0 2.5
		56		41					40 2.7 3.3
		57		41					50 3.3 4.2
		58		41					
		59		41					
		60		41					
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.



No.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.51264	37	9.53697	41	0.46303	9.97567	4	60	
1	9.51301	37	9.53738	41	0.46262	9.97563	5	59	
2	9.51338	36	9.53779	41	0.46221	9.97558	4	58	
3	9.51374	37	9.53820	41	0.46180	9.97554	4	57	
4	9.51411	36	9.53861	41	0.46139	9.97550	5	56	
5	9.51447	37	9.53902	41	0.46098	9.97545	4	55	41 40 1 0.7 0.7 2 1.4 1.3 3 2.1 2.0 4 2.7 2.7 5 3.4 3.3 6 4.1 4.0 7 4.8 4.7 8 5.5 5.3 9 6.2 6.0 10 6.8 6.7
6	9.51484	36	9.53943	41	0.46057	9.97541	5	54	20 13.7 13.3 30 20.5 20.0 40 27.3 26.7 50 34.2 33.3
7	9.51520	37	9.53984	41	0.46016	9.97536	4	53	
8	9.51557	36	9.54025	40	0.45975	9.97532	4	52	
9	9.51593	36	9.54065	41	0.45935	9.97528	5	51	
10	9.51629	37	9.54106	41	0.45894	9.97523	4	50	
11	9.51666	36	9.54147	40	0.45853	9.97519	4	49	
12	9.51702	36	9.54187	41	0.45813	9.97515	5	48	
13	9.51738	36	9.54228	41	0.45772	9.97510	4	47	
14	9.51774	37	9.54269	40	0.45731	9.97506	5	46	37 36 1 0.6 0.6 2 1.2 1.2 3 1.9 1.8 4 2.5 2.4 5 3.1 3.0 6 3.7 3.6 7 4.3 4.2 8 4.9 4.8 9 5.6 5.4 10 6.2 6.0 20 12.3 12.0 30 18.5 18.0 40 24.7 24.0 50 30.8 30.0
15	9.51811	36	9.54309	41	0.45691	9.97501	4	45	
16	9.51847	36	9.54350	40	0.45650	9.97497	5	44	
17	9.51883	36	9.54390	41	0.45610	9.97492	4	43	
18	9.51919	36	9.54431	40	0.45569	9.97488	4	42	
19	9.51955	36	9.54471	41	0.45529	9.97484	5	41	
20	9.51991	36	9.54512	40	0.45488	9.97479	4	40	
21	9.52027	36	9.54552	41	0.45448	9.97475	5	39	
22	9.52063	36	9.54593	40	0.45407	9.97470	4	38	
23	9.52099	36	9.54633	40	0.45367	9.97466	5	37	
24	9.52135	36	9.54673	41	0.45327	9.97461	4	36	4 5 10 0.7 0.8 20 1.3 1.7 30 2.0 2.5 40 2.7 3.3 50 3.3 4.2
25	9.52171	36	9.54714	40	0.45286	9.97457	4	35	
26	9.52207	35	9.54754	40	0.45246	9.97453	5	34	
27	9.52242	36	9.54794	41	0.45206	9.97448	4	33	
28	9.52278	36	9.54835	40	0.45165	9.97444	5	32	
29	9.52314	36	9.54875	40	0.45125	9.97439	4	31	
30	9.52350	35	9.54915	40	0.45085	9.97435	5	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.52350	35	9.54915	40	0.45085	9.97435	5	30	
31	9.52385	36	9.54955	40	0.45045	9.97430	4	29	40 39
32	9.52421	35	9.54995	40	0.45005	9.97426	5	28	1 0.7 0.7
33	9.52456	36	9.55035	40	0.44965	9.97421	4	27	2 1.3 1.3
34	9.52492	35	9.55075	40	0.44925	9.97417	5	26	3 2.0 2.0
35	9.52527	36	9.55115	40	0.44885	9.97412	4	25	4 2.7 2.6
36	9.52563	35	9.55155	40	0.44845	9.97408	5	24	5 3.3 3.3
37	9.52598	36	9.55195	40	0.44805	9.97403	4	23	6 4.0 3.9
38	9.52634	35	9.55235	40	0.44765	9.97399	5	22	7 4.7 4.6
39	9.52669	36	9.55275	40	0.44725	9.97394	4	21	8 5.3 5.2
40	9.52705	35	9.55315	40	0.44685	9.97390	5	20	9 6.0 5.9
41	9.52740	36	9.55355	40	0.44645	9.97385	4	19	10 6.7 6.5
42	9.52775	35	9.55395	40	0.44605	9.97381	5	18	20 13.3 13.0
43	9.52811	36	9.55434	40	0.44566	9.97376	4	17	30 20.0 19.5
44	9.52846	35	9.55474	40	0.44526	9.97372	5	16	40 26.7 26.0
45	9.52881	36	9.55514	40	0.44486	9.97367	4	15	50 33.3 32.5
46	9.52916	35	9.55554	40	0.44446	9.97363	5	14	36
47	9.52951	36	9.55593	40	0.44407	9.97358	4	13	1 0.6
48	9.52986	35	9.55633	40	0.44367	9.97353	5	12	2 1.2
49	9.53021	36	9.55673	40	0.44327	9.97349	4	11	3 1.8
50	9.53056	35	9.55712	40	0.44288	9.97344	5	10	4 2.4
51	9.53092	36	9.55752	40	0.44248	9.97340	4	9	5 3.0
52	9.53126	35	9.55791	40	0.44209	9.97335	5	8	6 3.6
53	9.53161	36	9.55831	40	0.44169	9.97331	4	7	7 4.2
54	9.53196	35	9.55870	40	0.44130	9.97326	5	6	8 4.8
55	9.53231	36	9.55910	40	0.44090	9.97322	4	5	9 5.4
56	9.53266	35	9.55949	40	0.44051	9.97317	5	4	10 6.0
57	9.53301	36	9.55989	40	0.44011	9.97312	4	3	20 12.0
58	9.53336	35	9.56028	40	0.43972	9.97308	5	2	30 18.0
59	9.53370	36	9.56067	40	0.43933	9.97303	4	1	40 24.0
60	9.53405	35	9.56107	40	0.43893	9.97299	5	0	50 30.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Nia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.53405	35	9.56107	39	0.43893	9.97299	5	60	
1	9.53440	35	9.56146	39	0.43854	9.97294	5	59	40 39
2	9.53475	34	9.56185	39	0.43815	9.97289	4	58	1 0.7 0.7
3	9.53509	35	9.56224	40	0.43776	9.97285	5	57	2 1.3 1.3
4	9.53544	34	9.56264	39	0.43736	9.97280	4	56	3 2.0 2.0
5	9.53578	35	9.56303	39	0.43697	9.97276	5	55	4 2.7 2.6
6	9.53613	34	9.56342	39	0.43658	9.97271	4	54	5 3.3 3.3
7	9.53647	35	9.56381	39	0.43619	9.97266	5	53	6 4.0 3.9
8	9.53682	34	9.56420	39	0.43580	9.97262	4	52	7 4.7 4.6
9	9.53716	35	9.56459	39	0.43541	9.97257	5	51	8 5.3 5.2
10	9.53751	34	9.56498	39	0.43502	9.97252	4	50	9 6.0 5.9
11	9.53785	35	9.56537	39	0.43463	9.97248	5	49	10 6.7 6.5
12	9.53819	34	9.56576	39	0.43424	9.97243	4	48	20 13.3 13.0
13	9.53854	35	9.56615	39	0.43385	9.97238	5	47	30 20.0 19.5
14	9.53888	34	9.56654	39	0.43346	9.97234	4	46	40 28.7 28.0
15	9.53922	35	9.56693	39	0.43307	9.97229	5	45	50 33.3 32.5
16	9.53957	34	9.56732	39	0.43268	9.97224	4	44	38 35
17	9.53991	35	9.56771	39	0.43229	9.97220	5	43	1 0.6 0.6
18	9.54025	34	9.56810	39	0.43190	9.97215	4	42	2 1.3 1.2
19	9.54059	35	9.56849	39	0.43151	9.97210	5	41	3 1.9 1.8
20	9.54093	34	9.56887	39	0.43113	9.97206	4	40	4 2.5 2.3
21	9.54127	35	9.56926	39	0.43074	9.97201	5	39	5 3.2 2.9
22	9.54161	34	9.56965	39	0.43035	9.97196	4	38	6 3.8 3.5
23	9.54195	35	9.57004	39	0.42996	9.97192	5	37	7 4.4 4.1
24	9.54229	34	9.57042	39	0.42958	9.97187	4	36	8 5.1 4.7
25	9.54263	35	9.57081	39	0.42919	9.97182	5	35	9 5.7 5.3
26	9.54297	34	9.57120	39	0.42880	9.97178	4	34	10 6.3 5.8
27	9.54331	35	9.57158	39	0.42842	9.97173	5	33	20 12.7 11.7
28	9.54365	34	9.57197	39	0.42803	9.97168	4	32	30 19.0 17.5
29	9.54399	35	9.57235	39	0.42765	9.97163	5	31	40 25.3 23.3
30	9.54433	34	9.57274	39	0.42726	9.97159	4	30	50 31.7 29.2
	Cosine	d	Cotang.	d	Tang.	Sine	d	Nia.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.54433	33	9.57274	38	0.42726	9.97159	5	30	
31	9.54466	34	9.57312	39	0.42688	9.97154	5	29	39 38
32	9.54500	34	9.57351	38	0.42649	9.97149	4	28	1 0.7 0.6 2 1.3 1.3
33	9.54534	33	9.57389	39	0.42611	9.97145	5	27	3 2.0 1.9 4 2.6 2.5
34	9.54567	34	9.57428	38	0.42572	9.97140	5	26	5 3.3 3.2 6 3.9 3.8
35	9.54601	34	9.57466	38	0.42534	9.97135	5	25	7 4.6 4.4 8 5.2 5.1
36	9.54635	33	9.57504	39	0.42496	9.97130	5	24	9 5.9 5.7 10 6.5 6.3
37	9.54668	34	9.57543	38	0.42457	9.97126	4	23	20 13.0 12.7 30 18.5 19.0
38	9.54702	33	9.57581	39	0.42419	9.97121	5	22	40 26.0 25.3 50 32.5 31.7
39	9.54735	34	9.57619	38	0.42381	9.97116	5	21	
40	9.54769	33	9.57658	39	0.42342	9.97111	5	20	37
41	9.54802	34	9.57696	38	0.42304	9.97107	4	19	1 0.6 2 1.2
42	9.54836	33	9.57734	39	0.42266	9.97102	5	18	3 1.9 4 2.5
43	9.54869	34	9.57772	38	0.42228	9.97097	5	17	5 3.1 6 3.7
44	9.54903	33	9.57810	39	0.42190	9.97092	5	16	7 4.3 8 4.9
45	9.54936	34	9.57849	38	0.42151	9.97087	5	15	9 5.6 10 6.2
46	9.54969	33	9.57887	39	0.42113	9.97083	4	14	20 12.3 30 18.5
47	9.55003	34	9.57925	38	0.42075	9.97078	5	13	40 24.7 50 30.8
48	9.55036	33	9.57963	39	0.42037	9.97073	5	12	
49	9.55069	34	9.58001	38	0.41999	9.97068	5	11	34 33 1 0.6 0.6
50	9.55102	33	9.58039	39	0.41961	9.97063	5	10	2 1.1 1.1 3 1.7 1.7
51	9.55136	34	9.58077	38	0.41923	9.97059	4	9	4 2.3 2.2 5 2.8 2.8
52	9.55169	33	9.58115	39	0.41885	9.97054	5	8	6 3.4 3.3 7 4.0 3.9
53	9.55202	34	9.58153	38	0.41847	9.97049	5	7	8 4.5 4.4 9 5.1 5.0
54	9.55235	33	9.58191	39	0.41809	9.97044	5	6	10 5.7 5.5 20 11.3 11.0
55	9.55268	34	9.58229	38	0.41771	9.97039	5	5	30 17.0 16.5 40 22.7 22.0
56	9.55301	33	9.58267	39	0.41733	9.97035	4	4	50 28.3 27.5
57	9.55334	34	9.58304	37	0.41696	9.97030	5	3	
58	9.55367	33	9.58342	38	0.41658	9.97025	5	2	4 5 10 0.7 0.8
59	9.55400	34	9.58380	37	0.41620	9.97020	5	1	20 1.3 1.7 30 2.0 2.5
60	9.55433	33	9.58418	37	0.41582	9.97015	5	0	40 2.7 3.3 50 3.3 4.2
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.55433	33	9.58418	37	0.41582	9.97015	5	60	38 37
1	9.55466	33	9.58455	37	0.41545	9.97010	5	59	1 0.6 0.6
2	9.55499	33	9.58493	38	0.41507	9.97005	5	58	2 1.2 1.2
3	9.55532	33	9.58531	38	0.41469	9.97001	4	57	3 1.9 1.9
4	9.55564	32	9.58569	38	0.41431	9.96996	5	56	4 2.5 2.5
5	9.55597	33	9.58606	37	0.41394	9.96991	5	55	5 3.2 3.1
6	9.55630	33	9.58644	38	0.41356	9.96986	5	54	6 3.8 3.7
7	9.55663	33	9.58681	37	0.41319	9.96981	5	53	7 4.4 4.3
8	9.55695	32	9.58719	38	0.41281	9.96976	5	52	8 5.1 4.9
9	9.55728	33	9.58757	38	0.41243	9.96971	5	51	9 5.7 5.6
10	9.55761	33	9.58794	37	0.41206	9.96966	5	50	10 6.3 6.2
11	9.55793	32	9.58832	38	0.41168	9.96962	4	49	20 12.7 12.3
12	9.55826	33	9.58869	38	0.41131	9.96957	5	48	30 19.0 18.5
13	9.55858	32	9.58907	37	0.41093	9.96952	5	47	40 25.3 24.7
14	9.55891	33	9.58944	37	0.41056	9.96947	5	46	50 31.7 30.8
15	9.55923	32	9.58981	37	0.41019	9.96942	5	45	33 32
16	9.55956	33	9.59019	38	0.40981	9.96937	5	44	1 0.6 0.5
17	9.55988	32	9.59056	37	0.40944	9.96932	5	43	2 1.2 1.1
18	9.56021	33	9.59094	38	0.40906	9.96927	5	42	3 1.7 1.6
19	9.56053	32	9.59131	37	0.40869	9.96922	5	41	4 2.2 2.1
20	9.56086	33	9.59168	37	0.40832	9.96917	5	40	5 2.8 2.7
21	9.56118	32	9.59205	38	0.40795	9.96912	5	39	6 3.3 3.2
22	9.56150	32	9.59243	37	0.40757	9.96907	5	38	7 3.9 3.7
23	9.56182	33	9.59280	37	0.40720	9.96903	4	37	8 4.4 4.3
24	9.56215	32	9.59317	37	0.40683	9.96898	5	36	9 5.0 4.8
25	9.56247	32	9.59354	37	0.40646	9.96893	5	35	10 5.5 5.3
26	9.56279	32	9.59391	38	0.40609	9.96888	5	34	20 11.0 10.7
27	9.56311	32	9.59429	37	0.40571	9.96883	5	33	30 16.5 16.0
28	9.56343	32	9.59466	37	0.40534	9.96878	5	32	40 22.0 21.3
29	9.56375	33	9.59503	37	0.40497	9.96873	5	31	50 27.5 26.7
30	9.56406	32	9.59540	37	0.40460	9.96868	5	30	4 5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Mia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.56408		9.59540		0.40460	9.96868		30	
31	9.56440	32	9.59577	37	0.40423	9.96863	5	29	
32	9.56472	32	9.59614	37	0.40386	9.96858	5	28	
33	9.56504	32	9.59651	37	0.40349	9.96853	5	27	
34	9.56536	32	9.59688	37	0.40312	9.96848	5	26	
35	9.56568	32	9.59725	37	0.40275	9.96843	5	25	37 36
36	9.56599	31	9.59762	37	0.40238	9.96838	5	24	1 0.6 0.6
37	9.56631	32	9.59799	37	0.40201	9.96833	5	23	2 1.2 1.2
38	9.56663	32	9.59835	36	0.40165	9.96828	5	22	3 1.9 1.8
39	9.56695	32	9.59872	37	0.40128	9.96823	5	21	4 2.5 2.4
40	9.56727	32	9.59909	37	0.40091	9.96818	5	20	5 3.1 3.0
41	9.56759	31	9.59946	37	0.40054	9.96813	5	19	6 3.7 3.6
42	9.56790	32	9.59983	36	0.40017	9.96808	5	18	7 4.3 4.2
43	9.56822	32	9.60019	37	0.39981	9.96803	5	17	8 4.9 4.8
44	9.56854	32	9.60056	37	0.39944	9.96798	5	16	9 5.6 5.4
45	9.56886	32	9.60093	37	0.39907	9.96793	5	15	10 6.2 6.0
46	9.56917	31	9.60130	36	0.39870	9.96788	5	14	20 12.3 12.0
47	9.56949	31	9.60166	37	0.39834	9.96783	5	13	30 18.5 18.0
48	9.56980	32	9.60203	37	0.39797	9.96778	6	12	40 24.7 24.0
49	9.57012	32	9.60240	36	0.39760	9.96772	5	11	50 30.8 30.0
50	9.57044	31	9.60276	37	0.39724	9.96767	5	10	
51	9.57075	32	9.60313	36	0.39687	9.96762	5	9	32 31
52	9.57107	31	9.60349	37	0.39651	9.96757	5	8	1 0.5 0.5
53	9.57138	31	9.60386	36	0.39614	9.96752	5	7	2 1.1 1.0
54	9.57169	32	9.60422	37	0.39578	9.96747	5	6	3 1.6 1.6
55	9.57201	31	9.60459	36	0.39541	9.96742	5	5	4 2.1 2.1
56	9.57232	32	9.60495	37	0.39505	9.96737	5	4	5 2.7 2.6
57	9.57264	31	9.60532	36	0.39468	9.96732	5	3	6 3.2 3.1
58	9.57295	31	9.60568	37	0.39432	9.96727	5	2	7 3.7 3.6
59	9.57326	32	9.60605	36	0.39395	9.96722	5	1	8 4.3 4.1
60	9.57358	31	9.60641	36	0.39359	9.96717	6	0	9 4.8 4.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mia.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.57358		9.60641		0.39359	9.96717		60	
1	9.57389	31	9.60677	36	0.39323	9.96711	6	59	37 36
2	9.57420	31	9.60714	37	0.39286	9.96706	5	58	1 0.6 0.6
3	9.57451	31	9.60750	38	0.39250	9.96701	5	57	2 1.2 1.2
4	9.57482	31	9.60786	38	0.39214	9.96696	5	56	3 1.9 1.8
5	9.57514	32	9.60823	37	0.39177	9.96691	5	55	4 2.5 2.4
6	9.57545	31	9.60859	36	0.39141	9.96686	5	54	5 3.1 3.0
7	9.57576	31	9.60895	36	0.39105	9.96681	5	53	6 3.7 3.6
8	9.57607	31	9.60931	36	0.39069	9.96676	6	52	7 4.3 4.2
9	9.57638	31	9.60967	37	0.39033	9.96670	5	51	8 4.9 4.8
10	9.57669	31	9.61004	36	0.38996	9.96665	5	50	9 5.6 5.4
11	9.57700	31	9.61040	36	0.38960	9.96660	5	49	10 6.2 6.0
12	9.57731	31	9.61076	36	0.38924	9.96655	5	48	20 12.3 12.0
13	9.57762	31	9.61112	36	0.38888	9.96650	5	47	30 18.5 18.0
14	9.57793	31	9.61148	36	0.38852	9.96645	5	46	40 24.7 24.0
15	9.57824	31	9.61184	36	0.38816	9.96640	5	45	50 30.8 30.0
16	9.57855	30	9.61220	36	0.38780	9.96634	6	44	
17	9.57885	31	9.61256	36	0.38744	9.96629	5	43	
18	9.57916	31	9.61292	36	0.38708	9.96624	5	42	
19	9.57947	31	9.61328	36	0.38672	9.96619	5	41	31 30
20	9.57978	30	9.61364	36	0.38636	9.96614	6	40	1 0.5 0.5
21	9.58008	31	9.61400	36	0.38600	9.96608	5	39	2 1.0 1.0
22	9.58039	31	9.61436	36	0.38564	9.96603	5	38	3 1.6 1.5
23	9.58070	31	9.61472	36	0.38528	9.96598	5	37	4 2.1 2.0
24	9.58101	31	9.61508	36	0.38492	9.96593	5	36	5 2.6 2.5
25	9.58131	30	9.61544	35	0.38456	9.96588	6	35	6 3.1 3.0
26	9.58162	30	9.61579	36	0.38421	9.96582	5	34	7 3.6 3.5
27	9.58192	31	9.61615	36	0.38385	9.96577	5	33	8 4.1 4.0
28	9.58223	30	9.61651	36	0.38349	9.96572	5	32	9 4.7 4.5
29	9.58253	31	9.61687	35	0.38313	9.96567	5	31	10 5.2 5.0
30	9.58284	30	9.61722	36	0.38278	9.96562	6	30	20 10.3 10.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

22°

75

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.58284		9.61722		0.38278	9.96562		30	
31	9.58314	30	9.61758	36	0.38242	9.96556	6	29	
32	9.58345	31	9.61794	36	0.38206	9.96551	5	28	
33	9.58375	30	9.61830	36	0.38170	9.96546	5	27	
34	9.58406	31	9.61865	35	0.38135	9.96541	5	26	
		30		36			6		36 35
35	9.58436		9.61901		0.38099	9.96535		25	1 0.6 0.6
		31		35			5		2 1.2 1.2
36	9.58467		9.61936		0.38064	9.96530		24	3 1.8 1.8
37	9.58497	30	9.61972	36	0.38028	9.96525	5	23	4 2.4 2.3
38	9.58527	30	9.62008	36	0.37992	9.96520	5	22	5 3.0 2.9
39	9.58557	30	9.62043	35	0.37957	9.96514	6	21	6 3.6 3.5
		31		36			5		7 4.2 4.1
40	9.58588		9.62079		0.37921	9.96509		20	8 4.8 4.7
		30		35			5		9 5.4 5.3
41	9.58618		9.62114		0.37886	9.96504		19	10 6.0 5.8
42	9.58648	30	9.62150	36	0.37850	9.96498	6	18	20 12.0 11.7
43	9.58678	30	9.62185	35	0.37815	9.96493	5	17	30 18.0 17.5
44	9.58709	31	9.62221	36	0.37779	9.96488	5	16	40 24.0 23.3
		30		35			5		50 30.0 29.2
45	9.58739		9.62256		0.37744	9.96483		15	
		30		36			6		31 30
46	9.58769		9.62292		0.37708	9.96477		14	1 0.5 0.5
47	9.58799	30	9.62327	35	0.37673	9.96472	5	13	2 1.0 1.0
48	9.58829	30	9.62362	35	0.37638	9.96467	5	12	3 1.6 1.5
49	9.58859	30	9.62398	36	0.37602	9.96461	6	11	4 2.1 2.0
		30		35			5		5 2.6 2.5
50	9.58889		9.62433		0.37567	9.96456		10	6 3.1 3.0
		30		35			5		7 3.6 3.5
51	9.58919		9.62468		0.37532	9.96451		9	8 4.1 4.0
52	9.58949	30	9.62504	36	0.37496	9.96445	6	8	9 4.7 4.5
53	9.58979	30	9.62539	35	0.37461	9.96440	5	7	10 5.2 5.0
54	9.59009	30	9.62574	35	0.37426	9.96435	5	6	20 10.3 10.0
		30		35			5		30 15.5 15.0
55	9.59039		9.62609		0.37391	9.96429		5	40 20.7 20.0
		30		36			5		50 25.8 25.0
56	9.59069		9.62645		0.37355	9.96424		4	
57	9.59098	29	9.62680	35	0.37320	9.96419	5	3	5 6
58	9.59128	30	9.62715	35	0.37285	9.96413	6	2	10 0.8 1.0
59	9.59158	30	9.62750	35	0.37250	9.96408	5	1	20 1.7 2.0
		30		35			5		30 2.5 3.0
60	9.59188		9.62785		0.37215	9.96403		0	40 3.3 4.0
		30		35			6		50 4.2 5.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

67°



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.59188	30	9.62785	35	0.37215	9.96403	6	60	
1	9.59218	29	9.62820	35	0.37180	9.96397	5	59	
2	9.59247	30	9.62855	35	0.37145	9.96392	5	58	
3	9.59277	30	9.62890	36	0.37110	9.96387	6	57	
4	9.59307	29	9.62926	35	0.37074	9.96381	5	56	
5	9.59336	30	9.62961	35	0.37039	9.96376	6	55	36 35
6	9.59366	30	9.62996	35	0.37004	9.96370	5	54	1 0.6 0.6
7	9.59396	29	9.63031	35	0.36969	9.96365	5	53	2 1.2 1.2
8	9.59425	30	9.63066	35	0.36934	9.96360	6	52	3 1.8 1.8
9	9.59455	29	9.63101	34	0.36899	9.96354	5	51	4 2.4 2.3
10	9.59484	30	9.63135	35	0.36865	9.96349	6	50	5 3.0 2.9
11	9.59514	29	9.63170	35	0.36830	9.96343	5	49	6 3.6 3.5
12	9.59543	30	9.63205	35	0.36795	9.96338	6	48	7 4.2 4.1
13	9.59573	29	9.63240	35	0.36760	9.96333	5	47	8 4.8 4.7
14	9.59602	30	9.63275	35	0.36725	9.96327	6	46	9 5.4 5.3
15	9.59632	29	9.63310	35	0.36690	9.96322	5	45	10 6.0 5.8
16	9.59661	30	9.63345	34	0.36655	9.96316	6	44	20 12.0 11.7
17	9.59690	29	9.63379	35	0.36621	9.96311	5	43	30 18.0 17.5
18	9.59720	30	9.63414	35	0.36586	9.96305	6	42	40 24.0 23.3
19	9.59749	29	9.63449	35	0.36551	9.96300	5	41	50 30.0 29.2
20	9.59778	30	9.63484	35	0.36516	9.96294	6	40	
21	9.59808	29	9.63519	34	0.36481	9.96289	5	39	34 30
22	9.59837	30	9.63553	35	0.36447	9.96284	6	38	1 0.6 0.5
23	9.59866	29	9.63588	35	0.36412	9.96278	5	37	2 1.1 1.0
24	9.59895	30	9.63623	34	0.36377	9.96273	6	36	3 1.7 1.5
25	9.59924	29	9.63657	35	0.36343	9.96267	5	35	4 2.3 2.0
26	9.59954	30	9.63692	34	0.36308	9.96262	6	34	5 2.8 2.5
27	9.59983	29	9.63726	35	0.36274	9.96256	5	33	6 3.4 3.0
28	9.60012	30	9.63761	35	0.36239	9.96251	6	32	7 4.0 3.5
29	9.60041	29	9.63796	34	0.36204	9.96245	5	31	8 4.5 4.0
30	9.60070	30	9.63830	35	0.36170	9.96240	6	30	9 5.1 4.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.60070	29	9.63830	35	0.36170	9.96240	6	30	
31	9.60099	29	9.63865	34	0.36135	9.96234	5	29	
32	9.60128	29	9.63899	35	0.36101	9.96229	6	28	
33	9.60157	29	9.63934	34	0.36066	9.96223	5	27	
34	9.60186	29	9.63968	35	0.36032	9.96218	6	26	
35	9.60215	29	9.64003	34	0.35997	9.96212	5	25	35 34
36	9.60244	29	9.64037	35	0.35963	9.96207	6	24	1 0.6 0.6
37	9.60273	29	9.64072	34	0.35928	9.96201	5	23	2 1.2 1.1
38	9.60302	29	9.64106	34	0.35894	9.96196	6	22	3 1.8 1.7
39	9.60331	28	9.64140	35	0.35860	9.96190	5	21	4 2.3 2.3
40	9.60359	29	9.64175	34	0.35825	9.96185	6	20	5 2.9 2.8
41	9.60388	29	9.64209	35	0.35791	9.96179	5	19	6 3.5 3.4
42	9.60417	29	9.64243	34	0.35757	9.96174	6	18	7 4.1 4.0
43	9.60446	28	9.64278	35	0.35722	9.96168	5	17	8 4.7 4.5
44	9.60474	29	9.64312	34	0.35688	9.96162	6	16	9 5.3 5.1
45	9.60503	29	9.64346	35	0.35654	9.96157	5	15	10 5.8 5.7
46	9.60532	29	9.64381	34	0.35619	9.96151	6	14	20 11.7 11.3
47	9.60561	28	9.64415	35	0.35585	9.96146	5	13	30 17.5 17.0
48	9.60589	29	9.64449	34	0.35551	9.96140	6	12	40 23.3 22.7
49	9.60618	28	9.64483	35	0.35517	9.96135	5	11	50 29.2 28.3
50	9.60646	29	9.64517	34	0.35483	9.96129	6	10	29 28
51	9.60675	29	9.64552	35	0.35448	9.96123	5	9	1 0.5 0.5
52	9.60704	28	9.64586	34	0.35414	9.96118	6	8	2 1.0 0.9
53	9.60732	29	9.64620	35	0.35380	9.96112	5	7	3 1.5 1.4
54	9.60761	28	9.64654	34	0.35346	9.96107	6	6	4 1.9 1.9
55	9.60789	29	9.64688	35	0.35312	9.96101	5	5	5 2.4 2.3
56	9.60818	28	9.64722	34	0.35278	9.96095	6	4	6 2.9 2.8
57	9.60846	29	9.64756	35	0.35244	9.96090	5	3	7 3.4 3.3
58	9.60875	28	9.64790	34	0.35210	9.96084	6	2	8 3.9 3.7
59	9.60903	28	9.64824	35	0.35176	9.96079	5	1	9 4.4 4.2
60	9.60931	29	9.64858	34	0.35142	9.96073	6	0	10 4.8 4.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.60931	29	9.64858	34	0.35142	9.96073	6	60	
1	9.60960	28	9.64892	34	0.35108	9.96067	5	59	
2	9.60988	28	9.64926	34	0.35074	9.96062	6	58	
3	9.61016	29	9.64960	34	0.35040	9.96056	6	57	
4	9.61045	28	9.64994	34	0.35006	9.96050	5	56	
5	9.61073	28	9.65028	34	0.34972	9.96045	6	55	34 33
6	9.61101	28	9.65062	34	0.34938	9.96039	5	54	1 0.6 0.6
7	9.61129	29	9.65096	34	0.34904	9.96034	6	53	2 1.1 1.1
8	9.61158	28	9.65130	34	0.34870	9.96028	6	52	3 1.7 1.7
9	9.61186	28	9.65164	33	0.34836	9.96022	5	51	4 2.3 2.2
10	9.61214	28	9.65197	34	0.34803	9.96017	6	50	5 2.8 2.8
11	9.61242	28	9.65231	34	0.34769	9.96011	5	49	6 3.4 3.3
12	9.61270	28	9.65265	34	0.34735	9.96005	6	48	7 4.0 3.9
13	9.61298	28	9.65299	34	0.34701	9.96000	5	47	8 4.5 4.4
14	9.61326	28	9.65333	33	0.34667	9.95994	6	46	9 5.1 5.0
15	9.61354	28	9.65366	34	0.34634	9.95988	5	45	10 5.7 5.5
16	9.61382	29	9.65400	34	0.34600	9.95982	6	44	20 11.3 11.0
17	9.61411	27	9.65434	33	0.34566	9.95977	5	43	30 17.0 16.5
18	9.61438	28	9.65467	34	0.34533	9.95971	6	42	40 22.7 22.0
19	9.61466	28	9.65501	34	0.34499	9.95965	5	41	50 28.3 27.5
20	9.61494	28	9.65535	33	0.34465	9.95960	6	40	
21	9.61522	28	9.65568	34	0.34432	9.95954	5	39	29 28
22	9.61550	28	9.65602	34	0.34398	9.95948	6	38	1 0.5 0.5
23	9.61578	28	9.65636	33	0.34364	9.95942	5	37	2 1.0 0.9
24	9.61606	28	9.65669	34	0.34331	9.95937	6	36	3 1.5 1.4
25	9.61634	28	9.65703	33	0.34297	9.95931	5	35	4 1.9 1.9
26	9.61662	27	9.65736	34	0.34264	9.95925	6	34	5 2.4 2.3
27	9.61689	28	9.65770	33	0.34230	9.95920	5	33	6 2.9 2.8
28	9.61717	28	9.65803	34	0.34197	9.95914	6	32	7 3.4 3.3
29	9.61745	28	9.65837	33	0.34163	9.95908	5	31	8 3.9 3.7
30	9.61773	27	9.65870	34	0.34130	9.95902	6	30	9 4.4 4.2
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.61773	27	9.65870	34	0.34130	9.95902	5	30	
31	9.61800	28	9.65904	33	0.34096	9.95897	6	29	
32	9.61828	28	9.65937	34	0.34063	9.95891	6	28	
33	9.61856	27	9.65971	33	0.34029	9.95885	6	27	
34	9.61883	28	9.66004	34	0.33996	9.95879	6	26	
35	9.61911	28	9.66038	33	0.33962	9.95873	5	25	34 33
36	9.61939	27	9.66071	33	0.33929	9.95868	6	24	1 0.6 0.6
37	9.61966	28	9.66104	34	0.33896	9.95862	6	23	2 1.1 1.1
38	9.61994	27	9.66138	33	0.33862	9.95856	6	22	3 1.7 1.7
39	9.62021	28	9.66171	34	0.33829	9.95850	6	21	4 2.3 2.2
40	9.62049	27	9.66204	33	0.33796	9.95844	6	20	5 2.8 2.8
41	9.62076	28	9.66238	34	0.33762	9.95839	6	19	6 3.4 3.3
42	9.62104	27	9.66271	33	0.33729	9.95833	6	18	7 4.0 3.9
43	9.62131	28	9.66304	34	0.33696	9.95827	6	17	8 4.5 4.4
44	9.62159	27	9.66337	33	0.33663	9.95821	6	16	9 5.1 5.0
45	9.62186	28	9.66371	34	0.33629	9.95815	6	15	10 5.7 5.5
46	9.62214	27	9.66404	33	0.33596	9.95810	5	14	20 11.3 11.0
47	9.62241	28	9.66437	34	0.33563	9.95804	6	13	30 17.0 16.5
48	9.62268	27	9.66470	33	0.33530	9.95798	6	12	40 22.7 22.0
49	9.62296	28	9.66503	34	0.33497	9.95792	6	11	50 28.3 27.5
50	9.62323	27	9.66537	33	0.33463	9.95786	6	10	
51	9.62350	28	9.66570	34	0.33430	9.95780	6	9	28 27
52	9.62377	27	9.66603	33	0.33397	9.95775	5	8	1 0.5 0.5
53	9.62405	28	9.66636	34	0.33364	9.95769	6	7	2 0.9 0.9
54	9.62432	27	9.66669	33	0.33331	9.95763	6	6	3 1.4 1.4
55	9.62459	28	9.66702	34	0.33298	9.95757	6	5	4 1.9 1.8
56	9.62486	27	9.66735	33	0.33265	9.95751	6	4	5 2.3 2.3
57	9.62513	28	9.66768	34	0.33232	9.95745	6	3	6 2.8 2.7
58	9.62541	27	9.66801	33	0.33199	9.95739	6	2	7 3.3 3.2
59	9.62568	28	9.66834	34	0.33166	9.95733	6	1	8 3.7 3.6
60	9.62595	27	9.66867	33	0.33133	9.95728	5	0	9 4.2 4.1
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.62595		9.66867		0.33133	9.95728		60	
1	9.62622	27	9.66900	33	0.33100	9.95722	6	59	
2	9.62649	27	9.66933	33	0.33067	9.95716	6	58	
3	9.62676	27	9.66966	33	0.33034	9.95710	6	57	
4	9.62703	27	9.66999	33	0.33001	9.95704	6	56	
5	9.62730	27	9.67032	33	0.32968	9.95698	6	55	33 32
6	9.62757	27	9.67065	33	0.32935	9.95692	6	54	1 0.6 0.5
7	9.62784	27	9.67098	33	0.32902	9.95686	6	53	2 1.1 1.1
8	9.62811	27	9.67131	33	0.32869	9.95680	6	52	3 1.7 1.6
9	9.62838	27	9.67163	32	0.32837	9.95674	6	51	4 2.2 2.1
10	9.62865	27	9.67196	33	0.32804	9.95668	6	50	5 2.8 2.7
11	9.62892	26	9.67229	33	0.32771	9.95663	6	49	6 3.3 3.2
12	9.62918	27	9.67262	33	0.32738	9.95657	6	48	7 3.9 3.7
13	9.62945	27	9.67295	32	0.32705	9.95651	6	47	8 4.4 4.3
14	9.62972	27	9.67327	33	0.32673	9.95645	6	46	9 5.0 4.8
15	9.62999	27	9.67360	33	0.32640	9.95639	6	45	10 5.5 5.3
16	9.63026	26	9.67393	33	0.32607	9.95633	6	44	20 11.0 10.7
17	9.63052	27	9.67426	32	0.32574	9.95627	6	43	30 16.5 16.0
18	9.63079	27	9.67458	33	0.32542	9.95621	6	42	40 22.0 21.3
19	9.63106	27	9.67491	33	0.32509	9.95615	6	41	50 27.5 26.7
20	9.63133	26	9.67524	32	0.32476	9.95609	6	40	
21	9.63159	27	9.67556	33	0.32444	9.95603	6	39	27 26
22	9.63186	27	9.67589	33	0.32411	9.95597	6	38	1 0.5 0.4
23	9.63213	27	9.67622	33	0.32378	9.95591	6	37	2 0.9 0.9
24	9.63239	26	9.67654	32	0.32346	9.95585	6	36	3 1.4 1.3
25	9.63266	26	9.67687	32	0.32313	9.95579	6	35	4 1.8 1.7
26	9.63292	27	9.67719	33	0.32281	9.95573	6	34	5 2.3 2.2
27	9.63319	26	9.67752	33	0.32248	9.95567	6	33	6 2.7 2.6
28	9.63345	27	9.67785	32	0.32215	9.95561	6	32	7 3.2 3.0
29	9.63372	26	9.67817	33	0.32183	9.95555	6	31	8 3.6 3.5
30	9.63398	27	9.67850	32	0.32150	9.95549	6	30	9 4.1 3.9
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Nia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
<b>30</b>	<b>9.63398</b>		<b>9.67850</b>		<b>0.32150</b>	<b>9.95549</b>		<b>30</b>	
31	9.63425	27	9.67882	32	0.32118	9.95543	6	29	
32	9.63451	26	9.67915	33	0.32085	9.95537	6	28	
33	9.63478	27	9.67947	32	0.32053	9.95531	6	27	
34	9.63504	26	9.67980	33	0.32020	9.95525	6	26	
		27		32			6		
<b>35</b>	<b>9.63531</b>		<b>9.68012</b>		<b>0.31988</b>	<b>9.95519</b>		<b>25</b>	33 32
		26		32			6		1 0.6 0.5
36	9.63557	26	9.68044	33	0.31956	9.95513	6	24	2 1.1 1.1
37	9.63583	27	9.68077	32	0.31923	9.95507	6	23	3 1.7 1.6
38	9.63610	26	9.68109	33	0.31891	9.95500	7	22	4 2.2 2.1
39	9.63636	26	9.68142	32	0.31858	9.95494	6	21	5 2.8 2.7
		26		32			6		6 3.3 3.2
<b>40</b>	<b>9.63662</b>		<b>9.68174</b>		<b>0.31826</b>	<b>9.95488</b>		<b>20</b>	7 3.9 3.7
		27		32			6		8 4.4 4.3
41	9.63689	26	9.68206	33	0.31794	9.95482	6	19	9 5.0 4.8
42	9.63715	26	9.68239	32	0.31761	9.95476	6	18	10 5.5 5.3
43	9.63741	26	9.68271	32	0.31729	9.95470	6	17	20 11.0 10.7
44	9.63767	27	9.68303	33	0.31697	9.95464	6	16	30 16.5 16.0
		26		32			6		40 22.0 21.3
<b>45</b>	<b>9.63794</b>		<b>9.68336</b>		<b>0.31664</b>	<b>9.95458</b>		<b>15</b>	50 27.5 26.7
		26		32			6		
46	9.63820	26	9.68368	32	0.31632	9.95452	6	14	27 26
47	9.63846	26	9.68400	32	0.31600	9.95446	6	13	1 0.5 0.4
48	9.63872	26	9.68432	33	0.31568	9.95440	6	12	2 0.9 0.9
49	9.63898	26	9.68465	32	0.31535	9.95434	6	11	3 1.4 1.3
		26		32			6		4 1.8 1.7
<b>50</b>	<b>9.63924</b>		<b>9.68497</b>		<b>0.31503</b>	<b>9.95427</b>		<b>10</b>	5 2.3 2.2
		26		32			6		6 2.7 2.6
51	9.63950	26	9.68529	32	0.31471	9.95421	6	9	7 3.2 3.0
52	9.63976	26	9.68561	32	0.31439	9.95415	6	8	8 3.6 3.5
53	9.64002	26	9.68593	33	0.31407	9.95409	6	7	9 4.1 3.9
54	9.64028	26	9.68626	32	0.31374	9.95403	6	6	10 4.5 4.3
		26		32			6		20 9.0 8.7
<b>55</b>	<b>9.64054</b>		<b>9.68658</b>		<b>0.31342</b>	<b>9.95397</b>		<b>5</b>	30 13.5 13.0
		26		32			6		40 18.0 17.3
56	9.64080	26	9.68690	32	0.31310	9.95391	6	4	50 22.5 21.7
57	9.64106	26	9.68722	32	0.31278	9.95384	7	3	
58	9.64132	26	9.68754	32	0.31246	9.95378	6	2	6 7
59	9.64158	26	9.68786	32	0.31214	9.95372	6	1	10 1.0 1.2
		26		32			6		20 2.0 2.3
<b>60</b>	<b>9.64184</b>		<b>9.68818</b>		<b>0.31182</b>	<b>9.95366</b>		<b>0</b>	30 3.0 3.5
		26		32			6		40 4.0 4.7
							6		50 5.0 5.8
	Cosine	d	Cotang.	d	Tang.	Sine	d	Nia.	PP.

lin.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.64184		9.68818		0.31182	9.95366		60	
1	9.64210	26	9.68850	32	0.31150	9.95360	6	59	
2	9.64236	26	9.68882	32	0.31118	9.95354	6	58	
3	9.64262	26	9.68914	32	0.31086	9.95348	6	57	
4	9.64288	26	9.68946	32	0.31054	9.95341	7	56	
5	9.64313	25	9.68978	32	0.31022	9.95335	6	55	32 31
6	9.64339	26	9.69010	32	0.30990	9.95329	6	54	1 0.5 0.5
7	9.64365	26	9.69042	32	0.30958	9.95323	6	53	2 1.1 1.0
8	9.64391	26	9.69074	32	0.30926	9.95317	6	52	3 1.6 1.6
9	9.64417	26	9.69106	32	0.30894	9.95310	7	51	4 2.1 2.1
10	9.64442	25	9.69138	32	0.30862	9.95304	6	50	5 2.7 2.6
11	9.64468	26	9.69170	32	0.30830	9.95298	6	49	6 3.2 3.1
12	9.64494	25	9.69202	32	0.30798	9.95292	6	48	7 3.7 3.6
13	9.64519	26	9.69234	32	0.30766	9.95286	7	47	8 4.3 4.1
14	9.64545	26	9.69266	32	0.30734	9.95279	6	46	9 4.8 4.7
15	9.64571	25	9.69298	31	0.30702	9.95273	6	45	10 5.3 5.2
16	9.64596	26	9.69329	32	0.30671	9.95267	6	44	20 10.7 10.3
17	9.64622	25	9.69361	32	0.30639	9.95261	6	43	30 16.0 15.5
18	9.64647	26	9.69393	32	0.30607	9.95254	7	42	40 21.3 20.7
19	9.64673	25	9.69425	32	0.30575	9.95248	6	41	50 26.7 25.8
20	9.64698	26	9.69457	31	0.30543	9.95242	6	40	
21	9.64724	25	9.69488	32	0.30512	9.95236	6	39	26 25
22	9.64749	26	9.69520	32	0.30480	9.95229	7	38	1 0.4 0.4
23	9.64775	26	9.69552	32	0.30448	9.95223	6	37	2 0.9 0.8
24	9.64800	25	9.69584	32	0.30416	9.95217	6	36	3 1.3 1.3
25	9.64826	26	9.69615	31	0.30385	9.95211	6	35	4 1.7 1.7
26	9.64851	25	9.69647	32	0.30353	9.95204	6	34	5 2.2 2.1
27	9.64877	26	9.69679	32	0.30321	9.95198	6	33	6 2.6 2.5
28	9.64902	25	9.69710	31	0.30290	9.95192	7	32	7 3.0 2.9
29	9.64927	26	9.69742	32	0.30258	9.95185	6	31	8 3.5 3.3
30	9.64953	25	9.69774	31	0.30226	9.95179	6	30	9 3.9 3.8
	Cosine	d	Cotang.	d	Tang.	Sine	d	lin.	

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.64953	25	9.69774	31	0.30226	9.95179	6	30	
31	9.64978	25	9.69805	31	0.30195	9.95173	6	29	
32	9.65003	26	9.69837	31	0.30163	9.95167	7	28	
33	9.65029	25	9.69868	32	0.30132	9.95160	6	27	
34	9.65054	25	9.69900	32	0.30100	9.95154	6	26	
35	9.65079	25	9.69932	31	0.30068	9.95148	7	25	32 31
36	9.65104	26	9.69963	32	0.30037	9.95141	6	24	1 0.5 0.5
37	9.65130	25	9.69995	31	0.30005	9.95135	6	23	2 1.1 1.0
38	9.65155	25	9.70026	32	0.29974	9.95129	7	22	3 1.6 1.6
39	9.65180	25	9.70058	31	0.29942	9.95122	6	21	4 2.1 2.1
40	9.65205	25	9.70089	32	0.29911	9.95116	7	20	5 2.7 2.6
41	9.65230	25	9.70121	31	0.29879	9.95110	6	19	6 3.2 3.1
42	9.65255	26	9.70152	32	0.29848	9.95103	7	18	7 3.7 3.6
43	9.65281	25	9.70184	31	0.29816	9.95097	6	17	8 4.3 4.1
44	9.65306	25	9.70215	32	0.29785	9.95090	7	16	9 4.8 4.7
45	9.65331	25	9.70247	31	0.29753	9.95084	6	15	10 5.3 5.2
46	9.65356	25	9.70278	32	0.29722	9.95078	7	14	20 10.7 10.3
47	9.65381	25	9.70309	31	0.29691	9.95071	6	13	30 16.0 15.5
48	9.65406	25	9.70341	32	0.29659	9.95065	7	12	40 21.3 20.7
49	9.65431	25	9.70372	31	0.29628	9.95059	6	11	50 26.7 25.8
50	9.65456	25	9.70404	32	0.29596	9.95052	7	10	
51	9.65481	25	9.70435	31	0.29565	9.95046	6	9	25 24
52	9.65506	25	9.70466	32	0.29534	9.95039	7	8	1 0.4 0.4
53	9.65531	25	9.70498	31	0.29502	9.95033	6	7	2 0.8 0.8
54	9.65556	24	9.70529	32	0.29471	9.95027	7	6	3 1.3 1.2
55	9.65580	25	9.70560	31	0.29440	9.95020	6	5	4 1.7 1.6
56	9.65605	25	9.70592	32	0.29408	9.95014	7	4	5 2.1 2.0
57	9.65630	25	9.70623	31	0.29377	9.95007	6	3	6 2.5 2.4
58	9.65655	25	9.70654	32	0.29346	9.95001	7	2	7 2.9 2.8
59	9.65680	25	9.70685	31	0.29315	9.94995	6	1	8 3.3 3.2
60	9.65705	24	9.70717	32	0.29283	9.94988	7	0	9 3.8 3.6
				31			6		10 4.2 4.0
									20 8.3 8.0
									30 12.5 12.0
									40 16.7 16.0
									50 20.8 20.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.65705		9.70717		0.29283	9.94988		60	
1	9.65729	24	9.70748	31	0.29252	9.94982	6	59	
2	9.65754	25	9.70779	31	0.29221	9.94975	7	58	
3	9.65779	25	9.70810	31	0.29190	9.94969	6	57	
4	9.65804	25	9.70841	31	0.29159	9.94962	7	56	
5	9.65828	24	9.70873	32	0.29127	9.94956	6	55	32 31
6	9.65853	25	9.70904	31	0.29096	9.94949	7	54	1' 0.5 0.5
7	9.65878	25	9.70935	31	0.29065	9.94948	6	53	2 1.1 1.0
8	9.65902	24	9.70966	31	0.29034	9.94936	7	52	3 1.6 1.6
9	9.65927	25	9.70997	31	0.29003	9.94930	6	51	4 2.1 2.1
10	9.65952	25	9.71028	31	0.28972	9.94923	7	50	5 2.7 2.6
11	9.65976	24	9.71059	31	0.28941	9.94917	6	49	6 3.2 3.1
12	9.66001	25	9.71090	31	0.28910	9.94911	7	48	7 3.7 3.6
13	9.66025	24	9.71121	32	0.28879	9.94904	6	47	8 4.3 4.1
14	9.66050	25	9.71153	31	0.28847	9.94898	7	46	9 4.8 4.7
15	9.66075	24	9.71184	31	0.28816	9.94891	6	45	10 5.3 5.2
16	9.66099	25	9.71215	31	0.28785	9.94885	7	44	20 10.7 10.3
17	9.66124	24	9.71246	31	0.28754	9.94878	6	43	30 16.0 15.5
18	9.66148	25	9.71277	31	0.28723	9.94871	7	42	40 21.3 20.7
19	9.66173	24	9.71308	31	0.28692	9.94865	6	41	50 26.7 25.8
20	9.66197	24	9.71339	31	0.28661	9.94858	7	40	
21	9.66221	25	9.71370	31	0.28630	9.94852	6	39	25 24
22	9.66246	24	9.71401	30	0.28599	9.94845	7	38	1' 0.4 0.4
23	9.66270	25	9.71431	31	0.28569	9.94839	6	37	2 0.8 0.8
24	9.66295	24	9.71462	31	0.28538	9.94832	7	36	3 1.3 1.2
25	9.66319	24	9.71493	31	0.28507	9.94826	6	35	4 1.7 1.6
26	9.66343	25	9.71524	31	0.28476	9.94819	7	34	5 2.1 2.0
27	9.66368	24	9.71555	31	0.28445	9.94813	6	33	6 2.5 2.4
28	9.66392	24	9.71586	31	0.28414	9.94806	7	32	7 2.9 2.8
29	9.66416	25	9.71617	31	0.28383	9.94799	6	31	8 3.3 3.2
30	9.66441	24	9.71648	31	0.28352	9.94793	7	30	9 3.8 3.6
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.66441		9.71648		0.28352	9.94793		30	
31	9.66465	24	9.71679	31	0.28321	9.94786	7	29	
32	9.66489	24	9.71709	30	0.28291	9.94780	6	28	
33	9.66513	24	9.71740	31	0.28260	9.94773	7	27	
34	9.66537	24	9.71771	31	0.28229	9.94767	6	26	
35	9.66562	25	9.71802	31	0.28198	9.94760	7	25	31 30
36	9.66586	24	9.71833	31	0.28167	9.94753	7	24	1 0.5 0.5
37	9.66610	24	9.71863	30	0.28137	9.94747	6	23	2 1.0 1.0
38	9.66634	24	9.71894	31	0.28106	9.94740	7	22	3 1.6 1.5
39	9.66658	24	9.71925	31	0.28075	9.94734	6	21	4 2.1 2.0
40	9.66682	24	9.71955	30	0.28045	9.94727	7	20	5 2.6 2.5
41	9.66706	25	9.71986	31	0.28014	9.94720	6	19	6 3.1 3.0
42	9.66731	24	9.72017	31	0.27983	9.94714	7	18	7 3.6 3.5
43	9.66755	24	9.72048	30	0.27952	9.94707	6	17	8 4.1 4.0
44	9.66779	24	9.72078	31	0.27922	9.94700	7	16	9 4.7 4.5
45	9.66803	24	9.72109	31	0.27891	9.94694	6	15	10 5.2 5.0
46	9.66827	24	9.72140	30	0.27860	9.94687	7	14	20 10.3 10.0
47	9.66851	24	9.72170	31	0.27830	9.94680	6	13	30 15.5 15.0
48	9.66875	24	9.72201	31	0.27799	9.94674	7	12	40 20.7 20.0
49	9.66899	23	9.72231	31	0.27769	9.94667	6	11	50 25.8 25.0
50	9.66922	24	9.72262	31	0.27738	9.94660	7	10	
51	9.66946	24	9.72293	30	0.27707	9.94654	6	9	24 23
52	9.66970	24	9.72323	31	0.27677	9.94647	7	8	1 0.4 0.4
53	9.66994	24	9.72354	31	0.27646	9.94640	6	7	2 0.8 0.8
54	9.67018	24	9.72384	30	0.27616	9.94634	7	6	3 1.2 1.2
55	9.67042	24	9.72415	31	0.27585	9.94627	6	5	4 1.6 1.5
56	9.67066	24	9.72445	30	0.27555	9.94620	7	4	5 2.0 1.9
57	9.67090	23	9.72476	31	0.27524	9.94614	6	3	6 2.4 2.3
58	9.67113	24	9.72506	31	0.27494	9.94607	7	2	7 2.8 2.7
59	9.67137	24	9.72537	30	0.27463	9.94600	6	1	8 3.2 3.1
60	9.67161	24	9.72567	31	0.27433	9.94593	7	0	9 3.6 3.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.67161	24	9.72567	31	0.27433	9.94593	6	60	
1	9.67185	23	9.72598	30	0.27402	9.94587	7	59	
2	9.67208	24	9.72628	31	0.27372	9.94580	7	58	
3	9.67232	24	9.72659	30	0.27341	9.94573	6	57	
4	9.67256	24	9.72689	31	0.27311	9.94567	7	56	
5	9.67280	23	9.72720	30	0.27280	9.94560	7	55	31 30
6	9.67303	24	9.72750	30	0.27250	9.94553	7	54	1 0.5 0.5
7	9.67327	23	9.72780	31	0.27220	9.94546	6	53	2 1.0 1.0
8	9.67350	24	9.72811	30	0.27189	9.94540	7	52	3 1.6 1.5
9	9.67374	24	9.72841	31	0.27159	9.94533	6	51	4 2.1 2.0
10	9.67398	23	9.72872	30	0.27128	9.94526	7	50	5 2.6 2.5
11	9.67421	24	9.72902	31	0.27098	9.94519	6	49	6 3.1 3.0
12	9.67445	23	9.72932	30	0.27068	9.94513	7	48	7 3.6 3.5
13	9.67468	24	9.72963	31	0.27037	9.94506	6	47	8 4.1 4.0
14	9.67492	23	9.72993	30	0.27007	9.94499	7	46	9 4.7 4.5
15	9.67515	24	9.73023	31	0.26977	9.94492	6	45	10 5.2 5.0
16	9.67539	23	9.73054	30	0.26946	9.94485	7	44	20 10.3 10.0
17	9.67562	24	9.73084	31	0.26916	9.94479	6	43	30 15.5 15.0
18	9.67586	23	9.73114	30	0.26886	9.94472	7	42	40 20.7 20.0
19	9.67609	24	9.73144	31	0.26856	9.94465	6	41	50 25.8 25.0
20	9.67633	23	9.73175	30	0.26825	9.94458	7	40	
21	9.67656	24	9.73205	31	0.26795	9.94451	6	39	24 23
22	9.67680	23	9.73235	30	0.26765	9.94445	7	38	1 0.4 0.4
23	9.67703	24	9.73265	31	0.26735	9.94438	6	37	2 0.8 0.8
24	9.67726	23	9.73295	30	0.26705	9.94431	7	36	3 1.2 1.2
25	9.67750	24	9.73326	31	0.26674	9.94424	6	35	4 1.6 1.5
26	9.67773	23	9.73356	30	0.26644	9.94417	7	34	5 2.0 1.9
27	9.67796	24	9.73386	31	0.26614	9.94410	6	33	6 2.4 2.3
28	9.67820	23	9.73416	30	0.26584	9.94404	7	32	7 2.8 2.7
29	9.67843	24	9.73446	31	0.26554	9.94397	6	31	8 3.2 3.1
30	9.67866	23	9.73476	30	0.26524	9.94390	7	30	9 3.6 3.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.67866		9.73476		0.26524	9.94390		30	
31	9.67890	24	9.73507	31	0.26493	9.94383	7	29	
32	9.67913	23	9.73537	30	0.26463	9.94376	7	28	
33	9.67936	23	9.73567	30	0.26433	9.94369	7	27	
34	9.67959	23	9.73597	30	0.26403	9.94362	7	26	
35	9.67982	23	9.73627	30	0.26373	9.94355	7	25	30 29
36	9.68006	24	9.73657	30	0.26343	9.94349	6	24	1 0.5 0.5
37	9.68029	23	9.73687	30	0.26313	9.94342	7	23	2 1.0 1.0
38	9.68052	23	9.73717	30	0.26283	9.94335	7	22	3 1.5 1.5
39	9.68075	23	9.73747	30	0.26253	9.94328	7	21	4 2.0 1.9
40	9.68098	23	9.73777	30	0.26223	9.94321	7	20	5 2.5 2.4
41	9.68121	23	9.73807	30	0.26193	9.94314	7	19	6 3.0 2.9
42	9.68144	23	9.73837	30	0.26163	9.94307	7	18	7 3.5 3.4
43	9.68167	23	9.73867	30	0.26133	9.94300	7	17	8 4.0 3.9
44	9.68190	23	9.73897	30	0.26103	9.94293	7	16	9 4.5 4.4
45	9.68213	24	9.73927	30	0.26073	9.94286	7	15	10 5.0 4.8
46	9.68237	23	9.73957	30	0.26043	9.94279	7	14	20 10.0 9.7
47	9.68260	23	9.73987	30	0.26013	9.94273	6	13	30 15.0 14.5
48	9.68283	23	9.74017	30	0.25983	9.94266	7	12	40 20.0 19.3
49	9.68305	23	9.74047	30	0.25953	9.94259	7	11	50 25.0 24.2
50	9.68328	23	9.74077	30	0.25923	9.94252	7	10	
51	9.68351	23	9.74107	30	0.25893	9.94245	7	9	23 22
52	9.68374	23	9.74137	30	0.25863	9.94238	7	8	1 0.4 0.4
53	9.68397	23	9.74166	29	0.25833	9.94231	7	7	2 0.8 0.7
54	9.68420	23	9.74196	30	0.25804	9.94224	7	6	3 1.2 1.1
55	9.68443	23	9.74226	30	0.25774	9.94217	7	5	4 1.5 1.5
56	9.68466	23	9.74256	30	0.25744	9.94210	7	4	5 1.9 1.8
57	9.68489	23	9.74286	30	0.25714	9.94203	7	3	6 2.3 2.2
58	9.68512	22	9.74316	29	0.25684	9.94196	7	2	7 2.7 2.6
59	9.68534	23	9.74345	30	0.25655	9.94189	7	1	8 3.1 2.9
60	9.68557	23	9.74375	30	0.25625	9.94182	7	0	9 3.5 3.3
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.68557		9.74375		0.25625	9.94182		60	
1	9.68580	23	9.74405	30	0.25595	9.94175	7	59	
2	9.68603	23	9.74435	30	0.25565	9.94168	7	58	
3	9.68625	22	9.74465	30	0.25535	9.94161	7	57	
4	9.68648	23	9.74494	29	0.25506	9.94154	7	56	
5	9.68671	23	9.74524	30	0.25476	9.94147	7	55	30 29
6	9.68694	23	9.74554	30	0.25446	9.94140	7	54	1 0.5 0.5
7	9.68716	22	9.74583	29	0.25417	9.94133	7	53	2 1.0 1.0
8	9.68739	23	9.74613	30	0.25387	9.94126	7	52	3 1.5 1.5
9	9.68762	23	9.74643	30	0.25357	9.94119	7	51	4 2.0 1.9
10	9.68784	22	9.74673	30	0.25327	9.94112	7	50	5 2.5 2.4
11	9.68807	23	9.74702	29	0.25298	9.94105	7	49	6 3.0 2.9
12	9.68829	22	9.74732	30	0.25268	9.94098	7	48	7 3.5 3.4
13	9.68852	23	9.74762	29	0.25238	9.94090	7	47	8 4.0 3.9
14	9.68875	22	9.74791	30	0.25209	9.94083	7	46	9 4.5 4.4
15	9.68897	23	9.74821	30	0.25179	9.94076	7	45	10 5.0 4.8
16	9.68920	22	9.74851	29	0.25149	9.94069	7	44	20 10.0 9.7
17	9.68942	23	9.74880	30	0.25120	9.94062	7	43	30 15.0 14.5
18	9.68965	22	9.74910	29	0.25090	9.94055	7	42	40 20.0 19.3
19	9.68987	23	9.74939	30	0.25061	9.94048	7	41	50 25.0 24.2
20	9.69010	22	9.74969	29	0.25031	9.94041	7	40	
21	9.69032	23	9.74998	30	0.25002	9.94034	7	39	23 22
22	9.69055	22	9.75028	30	0.24972	9.94027	7	38	1 0.4 0.4
23	9.69077	23	9.75058	29	0.24942	9.94020	7	37	2 0.8 0.7
24	9.69100	22	9.75087	30	0.24913	9.94012	7	36	3 1.2 1.1
25	9.69122	23	9.75117	29	0.24883	9.94005	7	35	4 1.5 1.5
26	9.69144	22	9.75146	30	0.24854	9.93998	7	34	5 1.9 1.8
27	9.69167	23	9.75176	29	0.24824	9.93991	7	33	6 2.3 2.2
28	9.69189	22	9.75205	30	0.24795	9.93984	7	32	7 2.7 2.6
29	9.69212	23	9.75235	29	0.24765	9.93977	7	31	8 3.1 2.9
30	9.69234	22	9.75264	30	0.24736	9.93970	7	30	9 3.5 3.3
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

No.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.69234	22	9.75364	30	0.24736	9.93970	7	30	
31	9.69256	23	9.75294	29	0.24706	9.93963	8	29	
32	9.69279	22	9.75323	30	0.24677	9.93955	7	28	
33	9.69301	22	9.75353	29	0.24647	9.93948	7	27	
34	9.69323	22	9.75382	29	0.24618	9.93941	7	26	
35	9.69345	23	9.75411	30	0.24589	9.93934	7	25	30 29
36	9.69368	22	9.75441	29	0.24559	9.93927	7	24	1 0.5 0.5
37	9.69390	22	9.75470	30	0.24530	9.93920	7	23	2 1.0 1.0
38	9.69412	22	9.75500	29	0.24500	9.93912	8	22	3 1.5 1.5
39	9.69434	22	9.75529	29	0.24471	9.93905	7	21	4 2.0 1.9
40	9.69456	23	9.75558	30	0.24442	9.93898	7	20	5 2.5 2.4
41	9.69479	22	9.75588	29	0.24412	9.93891	7	19	6 3.0 2.9
42	9.69501	22	9.75617	30	0.24383	9.93884	8	18	7 3.5 3.4
43	9.69523	22	9.75647	29	0.24353	9.93876	7	17	8 4.0 3.9
44	9.69545	22	9.75676	29	0.24324	9.93869	7	16	9 4.5 4.4
45	9.69567	23	9.75705	30	0.24295	9.93862	7	15	10 5.0 4.8
46	9.69589	22	9.75735	29	0.24265	9.93855	7	14	20 10.0 9.7
47	9.69611	22	9.75764	29	0.24236	9.93847	8	13	30 15.0 14.5
48	9.69633	22	9.75793	29	0.24207	9.93840	7	12	40 20.0 19.3
49	9.69655	23	9.75822	30	0.24178	9.93833	7	11	50 25.0 24.2
50	9.69677	22	9.75852	29	0.24148	9.93826	7	10	
51	9.69699	22	9.75881	29	0.24119	9.93819	8	9	23 22
52	9.69721	22	9.75910	29	0.24090	9.93811	7	8	1 0.4 0.4
53	9.69743	22	9.75939	30	0.24061	9.93804	7	7	2 0.8 0.7
54	9.69765	22	9.75969	29	0.24031	9.93797	8	6	3 1.2 1.1
55	9.69787	23	9.75998	30	0.24002	9.93789	7	5	4 1.5 1.5
56	9.69809	22	9.76027	29	0.23973	9.93782	7	4	5 1.9 1.8
57	9.69831	22	9.76056	29	0.23944	9.93775	7	3	6 2.3 2.2
58	9.69853	22	9.76086	29	0.23914	9.93768	8	2	7 2.7 2.6
59	9.69875	22	9.76115	29	0.23885	9.93760	7	1	8 3.1 2.9
60	9.69897	23	9.76144	30	0.23856	9.93753	7	0	9 3.5 3.3
									10 3.8 3.7
									20 7.7 7.3
									30 11.5 11.0
									40 15.3 14.7
									50 19.2 18.3
									7 8
									10 1.2 1.3
									20 2.3 2.7
									30 3.5 4.0
									40 4.7 5.3
									50 5.8 6.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min	PP.

No.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.69897		9.76144		0.23856	9.93753		60	
1	9.69919	22	9.76173	29	0.23827	9.93746	7	59	
2	9.69941	22	9.76202	29	0.23798	9.93738	8	58	
3	9.69963	22	9.76231	29	0.23769	9.93731	7	57	
4	9.69984	21	9.76261	30	0.23739	9.93724	7	56	
5	9.70006	22	9.76290	29	0.23710	9.93717	7	55	30 29
6	9.70028	22	9.76319	29	0.23681	9.93709	8	54	1 0.5 0.5
7	9.70050	22	9.76348	29	0.23652	9.93702	7	53	2 1.0 1.0
8	9.70072	22	9.76377	29	0.23623	9.93695	7	52	3 1.5 1.5
9	9.70093	21	9.76406	29	0.23594	9.93687	8	51	4 2.0 1.9
10	9.70115	22	9.76435	29	0.23565	9.93680	7	50	5 2.5 2.4
11	9.70137	22	9.76464	29	0.23536	9.93673	7	49	6 3.0 2.9
12	9.70159	22	9.76493	29	0.23507	9.93665	8	48	7 3.5 3.4
13	9.70180	21	9.76522	29	0.23478	9.93658	8	47	8 4.0 3.9
14	9.70202	22	9.76551	29	0.23449	9.93650	7	46	9 4.5 4.4
15	9.70224	21	9.76580	29	0.23420	9.93643	7	45	10 5.0 4.8
16	9.70245	22	9.76609	30	0.23391	9.93636	8	44	20 10.0 9.7
17	9.70267	21	9.76639	29	0.23361	9.93628	7	43	30 15.0 14.5
18	9.70288	22	9.76668	29	0.23332	9.93621	7	42	40 20.0 19.3
19	9.70310	22	9.76697	28	0.23303	9.93614	8	41	50 25.0 24.2
20	9.70332	21	9.76725	29	0.23275	9.93606	7	40	
21	9.70353	22	9.76754	29	0.23246	9.93599	8	39	22 21
22	9.70375	21	9.76783	29	0.23217	9.93591	7	38	1 0.4 0.4
23	9.70396	22	9.76812	29	0.23188	9.93584	7	37	2 0.7 0.7
24	9.70418	21	9.76841	29	0.23159	9.93577	8	36	3 1.1 1.1
25	9.70439	22	9.76870	29	0.23130	9.93569	7	35	4 1.5 1.4
26	9.70461	21	9.76899	29	0.23101	9.93562	8	34	5 1.8 1.8
27	9.70482	22	9.76928	29	0.23072	9.93554	7	33	6 2.2 2.1
28	9.70504	21	9.76957	29	0.23043	9.93547	8	32	7 2.6 2.5
29	9.70525	22	9.76986	29	0.23014	9.93539	7	31	8 2.9 2.8
30	9.70547	21	9.77015	29	0.22985	9.93532	8	30	9 3.3 3.2
	Cosine	d	Cotang.	d	Tang.	Sine	d	No.	PP.

30°

91

Nia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.70547		9.77015		0.22985	9.93532		30	
		21		29			7		
31	9.70568		9.77044		0.22956	9.93525		29	
		22		29			8		
32	9.70590		9.77073		0.22927	9.93517		28	
		21		28			7		
33	9.70611		9.77101		0.22899	9.93510		27	
		22		29			8		
34	9.70633		9.77130		0.22870	9.93502		26	
		21		29			7		
35	9.70654		9.77159		0.22841	9.93495		25	
		21		29			8		29 28
36	9.70675		9.77188		0.22812	9.93487		24	1 0.5 0.5
		22		29			7		2 1.0 0.9
37	9.70697		9.77217		0.22783	9.93480		23	3 1.5 1.4
		21		29			8		4 1.9 1.9
38	9.70718		9.77246		0.22754	9.93472		22	5 2.4 2.3
		21		28			7		6 2.3 2.8
39	9.70739		9.77274		0.22726	9.93465		21	7 3.4 3.3
		22		29			8		8 3.9 3.7
40	9.70761		9.77303		0.22697	9.93457		20	9 4.4 4.2
		21		29			7		10 4.8 4.7
41	9.70782		9.77332		0.22668	9.93450		19	20 9.7 9.3
		21		29			8		30 14.5 14.0
42	9.70803		9.77361		0.22639	9.93442		18	40 19.3 18.7
		21		29			7		50 24.2 23.3
43	9.70824		9.77390		0.22610	9.93435		17	
		22		28			8		
44	9.70846		9.77418		0.22582	9.93427		16	
		21		29			7		22 21
45	9.70867		9.77447		0.22553	9.93420		15	1 0.4 0.4
		21		29			8		2 0.7 0.7
46	9.70888		9.77476		0.22524	9.93412		14	3 1.1 1.1
		21		29			7		4 1.5 1.4
47	9.70909		9.77505		0.22495	9.93405		13	5 1.8 1.8
		22		28			8		6 2.2 2.1
48	9.70931		9.77533		0.22467	9.93397		12	7 2.6 2.5
		21		29			7		8 2.9 2.8
49	9.70952		9.77562		0.22438	9.93390		11	9 3.3 3.2
		21		29			8		10 3.7 3.5
50	9.70973		9.77591		0.22409	9.93382		10	20 7.3 7.0
		21		28			7		30 11.0 10.5
51	9.70994		9.77619		0.22381	9.93375		9	40 14.7 14.0
		21		29			8		50 18.3 17.5
52	9.71015		9.77648		0.22352	9.93367		8	
		21		29			7		
53	9.71036		9.77677		0.22323	9.93360		7	
		22		29			8		
54	9.71058		9.77706		0.22294	9.93352		6	
		21		28			8		7 8
55	9.71079		9.77734		0.22266	9.93344		5	10 1.2 1.3
		21		29			7		20 2.3 2.7
56	9.71100		9.77763		0.22237	9.93337		4	30 3.5 4.0
		21		28			8		40 4.7 5.3
57	9.71121		9.77791		0.22209	9.93329		3	50 5.8 6.7
		21		29			7		
58	9.71142		9.77820		0.22180	9.93322		2	
		21		29			8		
59	9.71163		9.77849		0.22151	9.93314		1	
		21		28			7		
60	9.71184		9.77877		0.22123	9.93307		0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Nia.	PP.

59°



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.71184		9.77877		0.22123	9.93307		60	
1	9.71205	21	9.77906	29	0.22094	9.93299	8	59	
2	9.71226	21	9.77935	29	0.22065	9.93291	8	58	
3	9.71247	21	9.77963	28	0.22037	9.93284	7	57	
4	9.71268	21	9.77992	29	0.22008	9.93276	8	56	
5	9.71289	21	9.78020	28	0.21980	9.93269	7	55	29 28
6	9.71310	21	9.78049	29	0.21951	9.93261	8	54	1 0.5 0.5
7	9.71331	21	9.78077	28	0.21923	9.93253	8	53	2 1.0 0.9
8	9.71352	21	9.78106	29	0.21894	9.93246	7	52	3 1.5 1.4
9	9.71373	21	9.78135	29	0.21865	9.93238	8	51	4 1.9 1.9
10	9.71393	20	9.78163	28	0.21837	9.93230	8	50	5 2.4 2.3
11	9.71414	21	9.78192	29	0.21808	9.93223	7	49	6 2.9 2.8
12	9.71435	21	9.78220	28	0.21780	9.93215	8	48	7 3.4 3.3
13	9.71456	21	9.78249	29	0.21751	9.93207	7	47	8 3.9 3.7
14	9.71477	21	9.78277	28	0.21723	9.93200	8	46	9 4.4 4.2
15	9.71498	21	9.78306	29	0.21694	9.93192	8	45	10 4.8 4.7
16	9.71519	20	9.78334	29	0.21666	9.93184	7	44	20 9.7 9.3
17	9.71539	21	9.78363	28	0.21637	9.93177	8	43	30 14.5 14.0
18	9.71560	21	9.78391	28	0.21609	9.93169	8	42	40 19.3 18.7
19	9.71581	21	9.78419	29	0.21581	9.93161	7	41	50 24.2 23.3
20	9.71602	20	9.78448	28	0.21552	9.93154	8	40	
21	9.71622	21	9.78476	29	0.21524	9.93146	8	39	21 20
22	9.71643	21	9.78505	28	0.21495	9.93138	7	38	1 0.4 0.3
23	9.71664	21	9.78533	29	0.21467	9.93131	8	37	2 0.7 0.7
24	9.71685	20	9.78562	28	0.21438	9.93123	8	36	3 1.1 1.0
25	9.71706	21	9.78590	29	0.21410	9.93115	7	35	4 1.4 1.3
26	9.71726	21	9.78618	28	0.21382	9.93108	8	34	5 1.8 1.7
27	9.71747	20	9.78647	29	0.21353	9.93100	8	33	6 2.1 2.0
28	9.71767	21	9.78675	28	0.21325	9.93092	8	32	7 2.5 2.3
29	9.71788	21	9.78704	29	0.21296	9.93084	8	31	8 2.8 2.7
30	9.71809	20	9.78732	28	0.21268	9.93077	7	30	9 3.2 3.0
									10 3.5 3.3
									20 7.0 6.7
									30 10.5 10.0
									40 14.0 13.3
									50 17.5 16.7
									7 8
									10 12.1 1.3
									20 23.2 2.7
									30 35.4 4.0
									40 47.5 5.3
									50 58.6 6.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.71809	20	9.78732	28	0.21268	9.93077	8	30	
31	9.71829	21	9.78760	29	0.21240	9.93069	8	29	
32	9.71850	20	9.78789	28	0.21211	9.93061	8	28	
33	9.71870	21	9.78817	28	0.21183	9.93053	7	27	
34	9.71891	20	9.78845	29	0.21155	9.93046	8	26	
35	9.71911	21	9.78874	28	0.21126	9.93038	8	25	29 28
36	9.71932	20	9.78902	28	0.21098	9.93030	8	24	1 0.5 0.5
37	9.71952	21	9.78930	29	0.21070	9.93022	8	23	2 1.0 0.9
38	9.71973	21	9.78959	28	0.21041	9.93014	7	22	3 1.5 1.4
39	9.71994	20	9.78987	28	0.21013	9.93007	8	21	4 1.9 1.9
40	9.72014	20	9.79015	28	0.20985	9.92999	8	20	5 2.4 2.3
41	9.72034	21	9.79043	29	0.20957	9.92991	8	19	6 2.9 2.8
42	9.72055	20	9.79072	28	0.20928	9.92983	7	18	7 3.4 3.3
43	9.72075	21	9.79100	28	0.20900	9.92976	8	17	8 3.9 3.7
44	9.72096	20	9.79128	28	0.20872	9.92968	8	16	9 4.4 4.2
45	9.72116	21	9.79156	29	0.20844	9.92960	8	15	10 4.8 4.7
46	9.72137	20	9.79185	28	0.20815	9.92952	8	14	20 9.7 9.3
47	9.72157	20	9.79213	28	0.20787	9.92944	8	13	30 14.5 14.0
48	9.72177	21	9.79241	28	0.20759	9.92936	7	12	40 19.3 18.7
49	9.72198	20	9.79269	28	0.20731	9.92929	8	11	50 24.2 23.3
50	9.72218	20	9.79297	29	0.20703	9.92921	8	10	
51	9.72238	21	9.79326	28	0.20674	9.92913	8	9	21 20
52	9.72259	20	9.79354	28	0.20646	9.92905	8	8	1 0.4 0.3
53	9.72279	20	9.79382	28	0.20618	9.92897	8	7	2 0.7 0.7
54	9.72299	21	9.79410	28	0.20590	9.92889	8	6	3 1.1 1.0
55	9.72320	20	9.79438	28	0.20562	9.92881	7	5	4 1.4 1.3
56	9.72340	20	9.79466	29	0.20534	9.92874	8	4	5 1.8 1.7
57	9.72360	21	9.79495	28	0.20505	9.92866	8	3	6 2.1 2.0
58	9.72381	20	9.79523	28	0.20477	9.92858	8	2	7 2.5 2.3
59	9.72401	20	9.79551	28	0.20449	9.92850	8	1	8 2.8 2.7
60	9.72421	28	9.79579	28	0.20421	9.92842	8	0	9 3.2 3.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.72421		9.79579		0.20421	9.92842		60	
1	9.72441	20	9.79607	28	0.20393	9.92834	8	59	
2	9.72461	20	9.79635	28	0.20365	9.92826	8	58	
3	9.72482	21	9.79663	28	0.20337	9.92818	8	57	
4	9.72502	20	9.79691	28	0.20309	9.92810	8	56	
5	9.72522	20	9.79719	28	0.20281	9.92803	7	55	29 28
6	9.72542	20	9.79747	28	0.20253	9.92795	8	54	1 0.5 0.5
7	9.72562	20	9.79776	29	0.20224	9.92787	8	53	2 1.0 0.9
8	9.72582	20	9.79804	28	0.20196	9.92779	8	52	3 1.5 1.4
9	9.72602	20	9.79832	28	0.20168	9.92771	8	51	4 1.9 1.9
10	9.72622	20	9.79860	28	0.20140	9.92763	8	50	5 2.4 2.3
11	9.72643	21	9.79888	28	0.20112	9.92755	8	49	6 2.9 2.8
12	9.72663	20	9.79916	28	0.20084	9.92747	8	48	7 3.4 3.3
13	9.72683	20	9.79944	28	0.20056	9.92739	8	47	8 3.9 3.7
14	9.72703	20	9.79972	28	0.20028	9.92731	8	46	9 4.4 4.2
15	9.72723	20	9.80000	28	0.20000	9.92723	8	45	10 4.8 4.7
16	9.72743	20	9.80028	28	0.19972	9.92715	8	44	20 9.7 9.3
17	9.72763	20	9.80056	28	0.19944	9.92707	8	43	30 14.5 14.0
18	9.72783	20	9.80084	28	0.19916	9.92699	8	42	40 19.3 18.7
19	9.72803	20	9.80112	28	0.19888	9.92691	8	41	50 24.2 23.3
20	9.72823	20	9.80140	28	0.19860	9.92683	8	40	
21	9.72843	20	9.80168	28	0.19832	9.92675	8	39	21 20
22	9.72863	20	9.80195	27	0.19805	9.92667	8	38	1 0.4 0.3
23	9.72883	20	9.80223	28	0.19777	9.92659	8	37	2 0.7 0.7
24	9.72902	19	9.80251	28	0.19749	9.92651	8	36	3 1.1 1.0
25	9.72922	20	9.80279	28	0.19721	9.92643	8	35	4 1.4 1.3
26	9.72942	20	9.80307	28	0.19693	9.92635	8	34	5 1.8 1.7
27	9.72962	20	9.80335	28	0.19665	9.92627	8	33	6 2.1 2.0
28	9.72982	20	9.80363	28	0.19637	9.92619	8	32	7 2.5 2.3
29	9.73002	20	9.80391	28	0.19609	9.92611	8	31	8 2.8 2.7
30	9.73022	19	9.80419	28	0.19581	9.92603	8	30	9 3.2 3.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.73022	19	9.80419	28	0.19581	9.92603	8	30	
31	9.73041	19	9.80447	28	0.19553	9.92595	8	29	
32	9.73061	20	9.80474	27	0.19526	9.92587	8	28	
33	9.73081	20	9.80502	28	0.19498	9.92579	8	27	
34	9.73101	20	9.80530	28	0.19470	9.92571	8	26	
35	9.73121	20	9.80558	28	0.19442	9.92563	8	25	28 27
36	9.73140	19	9.80586	28	0.19414	9.92555	8	24	1 0.5 0.5
37	9.73160	20	9.80614	28	0.19386	9.92546	9	23	2 0.9 0.9
38	9.73180	20	9.80642	28	0.19358	9.92538	8	22	3 1.4 1.4
39	9.73200	20	9.80669	27	0.19331	9.92530	8	21	4 1.9 1.8
40	9.73219	19	9.80697	28	0.19303	9.92522	8	20	5 2.3 2.3
41	9.73239	20	9.80725	28	0.19275	9.92514	8	19	6 2.8 2.7
42	9.73259	19	9.80753	28	0.19247	9.92506	8	18	7 3.3 3.2
43	9.73278	20	9.80781	27	0.19219	9.92498	8	17	8 3.7 3.6
44	9.73298	20	9.80808	28	0.19192	9.92490	8	16	9 4.2 4.1
45	9.73318	20	9.80836	28	0.19164	9.92482	8	15	10 4.7 4.5
46	9.73337	19	9.80864	28	0.19136	9.92473	9	14	20 9.3 9.0
47	9.73357	20	9.80892	28	0.19108	9.92465	8	13	30 14.0 13.5
48	9.73377	20	9.80919	27	0.19081	9.92457	8	12	40 18.7 18.0
49	9.73396	19	9.80947	28	0.19053	9.92449	8	11	50 23.3 22.5
50	9.73416	20	9.80975	28	0.19025	9.92441	8	10	
51	9.73435	19	9.81003	28	0.18997	9.92433	8	9	20 19
52	9.73455	20	9.81030	27	0.18970	9.92425	8	8	1 0.3 0.3
53	9.73474	19	9.81058	28	0.18942	9.92416	9	7	2 0.7 0.6
54	9.73494	20	9.81086	28	0.18914	9.92408	8	6	3 1.0 1.0
55	9.73513	19	9.81113	27	0.18887	9.92400	8	5	4 1.3 1.3
56	9.73533	20	9.81141	28	0.18859	9.92392	8	4	5 1.7 1.6
57	9.73552	19	9.81169	28	0.18831	9.92384	8	3	6 2.0 1.9
58	9.73572	20	9.81196	27	0.18804	9.92376	8	2	7 2.3 2.2
59	9.73591	19	9.81224	28	0.18776	9.92367	9	1	8 2.7 2.5
60	9.73611	20	9.81252	28	0.18748	9.92359	8	0	9 3.0 2.9
									10 3.3 3.2
									20 6.7 6.3
									30 10.0 9.5
									40 13.3 12.7
									50 16.7 15.8
									8 9
									10 1.3 1.5
									20 2.7 3.0
									30 4.0 4.5
									40 5.3 6.0
									50 6.7 7.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.73611	19	9.81282	27	0.18748	9.92359	8	60	
1	9.73630	20	9.81279	28	0.18721	9.92351	8	59	
2	9.73650	19	9.81307	28	0.18693	9.92343	8	58	
3	9.73669	20	9.81335	27	0.18665	9.92335	9	57	
4	9.73689	19	9.81362	28	0.18638	9.92326	8	56	
5	9.73708	19	9.81390	28	0.18610	9.92318	8	55	28 27
6	9.73727	20	9.81418	27	0.18582	9.92310	8	54	1 0.5 0.5
7	9.73747	19	9.81445	28	0.18555	9.92302	8	53	2 0.9 0.9
8	9.73766	19	9.81473	27	0.18527	9.92293	9	52	3 1.4 1.4
9	9.73785	20	9.81500	28	0.18500	9.92285	8	51	4 1.9 1.8
10	9.73805	19	9.81528	28	0.18472	9.92277	8	50	5 2.3 2.3
11	9.73824	20	9.81556	27	0.18444	9.92269	9	49	6 2.8 2.7
12	9.73843	19	9.81583	28	0.18417	9.92260	8	48	7 3.3 3.2
13	9.73863	20	9.81611	27	0.18389	9.92252	9	47	8 3.7 3.6
14	9.73882	19	9.81638	28	0.18362	9.92244	8	46	9 4.2 4.1
15	9.73901	20	9.81666	27	0.18334	9.92235	9	45	10 4.7 4.5
16	9.73921	19	9.81693	28	0.18307	9.92227	8	44	20 9.3 9.0
17	9.73940	20	9.81721	27	0.18279	9.92219	9	43	30 14.0 13.5
18	9.73959	19	9.81748	28	0.18252	9.92211	8	42	40 18.7 18.0
19	9.73978	20	9.81776	27	0.18224	9.92202	9	41	50 23.3 22.5
20	9.73997	19	9.81803	28	0.18197	9.92194	8	40	
21	9.74017	20	9.81831	27	0.18169	9.92186	9	39	20 19
22	9.74036	19	9.81858	28	0.18142	9.92177	8	38	1 0.3 0.2
23	9.74055	20	9.81886	27	0.18114	9.92169	9	37	2 0.7 0.6
24	9.74074	19	9.81913	28	0.18087	9.92161	8	36	3 1.0 1.0
25	9.74093	20	9.81941	27	0.18059	9.92152	9	35	4 1.3 1.3
26	9.74113	19	9.81968	28	0.18032	9.92144	8	34	5 1.7 1.6
27	9.74132	20	9.81996	27	0.18004	9.92136	9	33	6 2.0 1.9
28	9.74151	19	9.82023	28	0.17977	9.92127	8	32	7 2.3 2.2
29	9.74170	20	9.82051	27	0.17949	9.92119	9	31	8 2.7 2.5
30	9.74189	19	9.82078	28	0.17922	9.92111	8	30	9 3.0 2.9
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Mis.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.74189		9.82078		0.17922	9.92111		30	
31	9.74208	19	9.82106	28	0.17894	9.92102	9	29	
32	9.74227	19	9.82133	27	0.17867	9.92094	8	28	
33	9.74246	19	9.82161	28	0.17839	9.92086	8	27	
34	9.74265	19	9.82188	27	0.17812	9.92077	9	26	
35	9.74284	19	9.82215	27	0.17785	9.92069	8	25	28 27
36	9.74303	19	9.82243	28	0.17757	9.92060	9	24	1 0.5 0.5
37	9.74322	19	9.82270	27	0.17730	9.92052	8	23	2 0.9 0.9
38	9.74341	19	9.82298	28	0.17702	9.92044	8	22	3 1.4 1.4
39	9.74360	19	9.82325	27	0.17675	9.92035	9	21	4 1.9 1.8
40	9.74379	19	9.82352	28	0.17648	9.92027	8	20	5 2.3 2.3
41	9.74398	19	9.82380	27	0.17620	9.92018	9	19	6 2.8 2.7
42	9.74417	19	9.82407	28	0.17593	9.92010	8	18	7 3.3 3.2
43	9.74436	19	9.82435	27	0.17565	9.92002	9	17	8 3.7 3.6
44	9.74455	19	9.82462	28	0.17538	9.91993	8	16	9 4.2 4.1
45	9.74474	19	9.82489	27	0.17511	9.91985	9	15	10 4.7 4.5
46	9.74493	19	9.82517	28	0.17483	9.91976	8	14	20 9.3 9.0
47	9.74512	19	9.82544	27	0.17456	9.91968	9	13	30 14.0 13.5
48	9.74531	18	9.82571	28	0.17429	9.91959	8	12	40 18.7 18.0
49	9.74549	19	9.82599	27	0.17401	9.91951	9	11	50 23.3 22.5
50	9.74568	19	9.82626	28	0.17374	9.91942	8	10	
51	9.74587	19	9.82653	27	0.17347	9.91934	9	9	19 18
52	9.74606	19	9.82681	28	0.17319	9.91925	8	8	1 0.3 0.3
53	9.74625	19	9.82708	27	0.17292	9.91917	9	7	2 0.8 0.6
54	9.74644	18	9.82735	28	0.17265	9.91908	8	6	3 1.0 0.9
55	9.74662	19	9.82762	27	0.17238	9.91900	9	5	4 1.3 1.2
56	9.74681	19	9.82790	28	0.17210	9.91891	8	4	5 1.6 1.5
57	9.74700	19	9.82817	27	0.17183	9.91883	9	3	6 1.9 1.8
58	9.74719	18	9.82844	28	0.17156	9.91874	8	2	7 2.2 2.1
59	9.74737	19	9.82871	27	0.17129	9.91866	9	1	8 2.5 2.4
60	9.74756	19	9.82899	28	0.17101	9.91857	8	0	9 2.9 2.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mis.	PP.

55°

34°

99

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
<b>30</b>	<b>9.75313</b>		<b>9.83713</b>		<b>0.16287</b>	<b>9.91599</b>		<b>30</b>	
31	9.75331	18	9.83740	27	0.16260	9.91591	8	29	28 27
32	9.75350	19	9.83768	28	0.16232	9.91582	9	28	1 0.5 0.5
33	9.75368	13	9.83795	27	0.16205	9.91573	9	27	2 0.9 0.9
34	9.75386	18	9.83822	27	0.16178	9.91565	8	26	3 1.4 1.4
		19		27			9	25	4 1.9 1.8
<b>35</b>	<b>9.75405</b>		<b>9.83849</b>		<b>0.16151</b>	<b>9.91556</b>		<b>25</b>	5 2.3 2.3
36	9.75423	18	9.83876	27	0.16124	9.91547	9	24	6 2.8 2.7
37	9.75441	18	9.83903	27	0.16097	9.91538	8	23	7 3.3 3.2
38	9.75459	19	9.83930	27	0.16070	9.91530	9	22	8 3.7 3.6
39	9.75478	18	9.83957	27	0.16043	9.91521	9	21	9 4.2 4.1
		18		27			8	20	10 4.7 4.5
<b>40</b>	<b>9.75496</b>		<b>9.83984</b>		<b>0.16016</b>	<b>9.91512</b>		<b>20</b>	20 9.3 9.0
41	9.75514	18	9.84011	27	0.15989	9.91504	9	19	30 14.0 13.5
42	9.75533	19	9.84038	27	0.15962	9.91495	9	18	40 18.7 18.0
43	9.75551	18	9.84065	27	0.15935	9.91486	9	17	50 23.3 22.5
44	9.75569	18	9.84092	27	0.15908	9.91477	8	16	
		18		27			8	15	26
<b>45</b>	<b>9.75587</b>		<b>9.84119</b>		<b>0.15881</b>	<b>9.91469</b>		<b>15</b>	1 0.4
46	9.75605	19	9.84146	27	0.15854	9.91460	9	14	2 0.9
47	9.75624	18	9.84173	27	0.15827	9.91451	9	13	3 1.3
48	9.75642	18	9.84200	27	0.15800	9.91442	9	12	4 1.7
49	9.75660	18	9.84227	27	0.15773	9.91433	8	11	5 2.2
		18		27			8	10	6 2.6
<b>50</b>	<b>9.75678</b>		<b>9.84254</b>		<b>0.15746</b>	<b>9.91425</b>		<b>10</b>	7 3.0
51	9.75696	18	9.84280	26	0.15720	9.91416	9	9	8 3.5
52	9.75714	18	9.84307	27	0.15693	9.91407	9	8	9 3.9
53	9.75733	19	9.84334	27	0.15666	9.91398	9	7	10 4.3
54	9.75751	18	9.84361	27	0.15639	9.91389	8	6	20 8.7
		18		27			8	5	30 13.0
<b>55</b>	<b>9.75769</b>		<b>9.84388</b>		<b>0.15612</b>	<b>9.91381</b>		<b>5</b>	40 17.3
56	9.75787	18	9.84415	27	0.15585	9.91372	9	4	50 21.7
57	9.75805	18	9.84442	27	0.15558	9.91363	9	3	
58	9.75823	18	9.84469	27	0.15531	9.91354	9	2	19 18
59	9.75841	18	9.84496	27	0.15504	9.91345	9	1	1 0.3 0.3
		18		27			9	0	2 0.6 0.6
<b>60</b>	<b>9.75859</b>		<b>9.84523</b>		<b>0.15477</b>	<b>9.91336</b>		<b>0</b>	3 1.0 0.9
									4 1.3 1.2
									5 1.6 1.5
									6 1.9 1.8
									7 2.2 2.1
									8 2.5 2.4
									9 2.9 2.7
									10 3.2 3.0
									20 6.3 6.0
									30 9.5 9.0
									40 12.7 12.0
									50 15.8 15.0
									8 9
									10 1.3 1.5
									20 2.7 3.0
									30 4.0 4.5
									40 5.3 6.0
									50 6.7 7.5
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

55°



Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.75859		9.84523		0.15477	9.91336		60	
1	9.75877	18	9.84550	27	0.15450	9.91328	8	59	
2	9.75895	18	9.84576	27	0.15424	9.91319	9	58	
3	9.75913	18	9.84603	27	0.15397	9.91310	9	57	
4	9.75931	18	9.84630	27	0.15370	9.91301	9	56	
5	9.75949	18	9.84657	27	0.15343	9.91292	9	55	27 26
6	9.75967	18	9.84684	27	0.15316	9.91283	9	54	1 0.5 0.4
7	9.75985	18	9.84711	27	0.15289	9.91274	9	53	2 0.9 0.9
8	9.76003	18	9.84738	27	0.15262	9.91266	8	52	3 1.4 1.3
9	9.76021	18	9.84764	26	0.15236	9.91257	9	51	4 1.8 1.7
10	9.76039	18	9.84791	27	0.15209	9.91248	9	50	5 2.3 2.2
11	9.76057	18	9.84818	27	0.15182	9.91239	9	49	6 2.7 2.6
12	9.76075	18	9.84845	27	0.15155	9.91230	9	48	7 3.2 3.0
13	9.76093	18	9.84872	27	0.15128	9.91221	9	47	8 3.6 3.5
14	9.76111	18	9.84899	27	0.15101	9.91212	9	46	9 4.1 3.9
15	9.76129	17	9.84925	27	0.15075	9.91203	9	45	10 4.5 4.3
16	9.76146	18	9.84952	27	0.15048	9.91194	9	44	20 9.0 8.7
17	9.76164	18	9.84979	27	0.15021	9.91185	9	43	30 13.5 13.0
18	9.76182	18	9.85006	27	0.14994	9.91176	9	42	40 18.0 17.3
19	9.76200	18	9.85033	26	0.14967	9.91167	9	41	50 22.5 21.7
20	9.76218	18	9.85059	27	0.14941	9.91158	9	40	18 17
21	9.76236	17	9.85086	27	0.14914	9.91149	8	39	1 0.3 0.3
22	9.76253	18	9.85113	27	0.14887	9.91141	9	38	2 0.6 0.6
23	9.76271	18	9.85140	26	0.14860	9.91132	9	37	3 0.9 0.9
24	9.76289	18	9.85166	27	0.14834	9.91123	9	36	4 1.2 1.1
25	9.76307	17	9.85193	27	0.14807	9.91114	9	35	5 1.5 1.4
26	9.76324	18	9.85220	27	0.14780	9.91105	9	34	6 1.8 1.7
27	9.76342	18	9.85247	26	0.14753	9.91096	9	33	7 2.1 2.0
28	9.76360	18	9.85273	27	0.14727	9.91087	9	32	8 2.4 2.3
29	9.76378	17	9.85300	27	0.14700	9.91078	9	31	9 2.7 2.6
30	9.76395	18	9.85327	27	0.14673	9.91069	9	30	10 3.0 2.8
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.76395	18	9.85327	27	0.14673	9.91069	9	30	
31	9.76413	18	9.85354	26	0.14646	9.91060	9	29	
32	9.76431	17	9.85380	27	0.14620	9.91051	9	28	
33	9.76448	18	9.85407	27	0.14593	9.91042	9	27	
34	9.76466	18	9.85434	26	0.14566	9.91033	10	26	
35	9.76484	17	9.85460	27	0.14540	9.91023	9	25	27 26
36	9.76501	18	9.85487	27	0.14513	9.91014	9	24	1 0.5 0.4
37	9.76519	18	9.85514	26	0.14486	9.91005	9	23	2 0.9 0.9
38	9.76537	17	9.85540	27	0.14460	9.90996	9	22	3 1.4 1.3
39	9.76554	18	9.85567	27	0.14433	9.90987	9	21	4 1.8 1.7
40	9.76572	18	9.85594	26	0.14406	9.90978	9	20	5 2.3 2.2
41	9.76590	17	9.85620	27	0.14380	9.90969	9	19	6 2.7 2.6
42	9.76607	18	9.85647	27	0.14353	9.90960	9	18	7 3.2 3.0
43	9.76625	17	9.85674	26	0.14326	9.90951	9	17	8 3.6 3.5
44	9.76642	18	9.85700	27	0.14300	9.90942	9	16	9 4.1 3.9
45	9.76660	17	9.85727	27	0.14273	9.90933	9	15	10 4.5 4.3
46	9.76677	18	9.85754	26	0.14246	9.90924	9	14	20 9.0 8.7
47	9.76695	17	9.85780	27	0.14220	9.90915	9	13	30 13.5 13.0
48	9.76712	18	9.85807	27	0.14193	9.90906	9	12	40 18.0 17.3
49	9.76730	17	9.85834	26	0.14166	9.90896	9	11	50 22.5 21.7
50	9.76747	18	9.85860	27	0.14140	9.90887	9	10	
51	9.76765	17	9.85887	26	0.14113	9.90878	9	9	18 17
52	9.76782	18	9.85913	27	0.14087	9.90869	9	8	1 0.3 0.3
53	9.76800	17	9.85940	27	0.14060	9.90860	9	7	2 0.8 0.6
54	9.76817	18	9.85967	26	0.14033	9.90851	9	6	3 0.9 0.9
55	9.76835	17	9.85993	27	0.14007	9.90842	9	5	4 1.2 1.1
56	9.76852	18	9.86020	26	0.13980	9.90832	9	4	5 1.5 1.4
57	9.76870	17	9.86046	27	0.13954	9.90823	9	3	6 1.9 1.7
58	9.76887	17	9.86073	27	0.13927	9.90814	9	2	7 2.1 2.0
59	9.76904	18	9.86100	26	0.13900	9.90805	9	1	8 2.4 2.3
60	9.76922		9.86126		0.13874	9.90796	9	0	9 2.7 2.6
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.76922	17	9.86126	27	0.13874	9.90796	9	60	
1	9.76939	18	9.86153	26	0.13847	9.90787	9	59	
2	9.76957	17	9.86179	27	0.13821	9.90777	10	58	
3	9.76974	17	9.86206	26	0.13794	9.90768	9	57	
4	9.76991	17	9.86232	26	0.13768	9.90759	9	56	
5	9.77009	18	9.86259	27	0.13741	9.90750	9	55	27 26
6	9.77026	17	9.86285	26	0.13715	9.90741	9	54	1 0.5 0.4
7	9.77043	17	9.86312	27	0.13688	9.90731	10	53	2 0.9 0.9
8	9.77061	18	9.86338	26	0.13662	9.90722	9	52	3 1.4 1.3
9	9.77078	17	9.86365	27	0.13635	9.90713	9	51	4 1.8 1.7
10	9.77095	17	9.86392	26	0.13608	9.90704	9	50	5 2.3 2.2
11	9.77112	18	9.86418	27	0.13582	9.90694	10	49	6 2.7 2.6
12	9.77130	17	9.86445	26	0.13555	9.90685	9	48	7 3.2 3.0
13	9.77147	17	9.86471	27	0.13529	9.90676	9	47	8 3.6 3.5
14	9.77164	17	9.86498	26	0.13502	9.90667	9	46	9 4.1 3.9
15	9.77181	18	9.86524	27	0.13476	9.90657	10	45	10 4.5 4.3
16	9.77199	17	9.86551	26	0.13449	9.90648	9	44	20 9.0 8.7
17	9.77216	17	9.86577	26	0.13423	9.90639	10	43	30 13.5 13.0
18	9.77233	17	9.86603	27	0.13397	9.90630	9	42	40 18.0 17.3
19	9.77250	18	9.86630	26	0.13370	9.90620	9	41	50 22.5 21.7
20	9.77268	17	9.86656	27	0.13344	9.90611	9	40	
21	9.77285	17	9.86683	26	0.13317	9.90602	10	39	18 17
22	9.77302	17	9.86709	27	0.13291	9.90592	9	38	1 0.3 0.3
23	9.77319	17	9.86736	26	0.13264	9.90583	9	37	2 0.6 0.6
24	9.77336	17	9.86762	27	0.13238	9.90574	9	36	3 0.9 0.9
25	9.77353	18	9.86789	26	0.13211	9.90565	10	35	4 1.2 1.1
26	9.77370	17	9.86815	27	0.13185	9.90555	9	34	5 1.5 1.4
27	9.77387	18	9.86842	26	0.13158	9.90546	9	33	6 1.8 1.7
28	9.77405	17	9.86868	27	0.13132	9.90537	10	32	7 2.1 2.0
29	9.77422	17	9.86894	26	0.13106	9.90527	9	31	8 2.4 2.3
30	9.77439	17	9.86921	27	0.13079	9.90518	9	30	9 2.7 2.6
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

36°

10

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.77439	17	9.86921	26	0.13079	9.90518	9	30	
31	9.77456	17	9.86947	27	0.13053	9.90509	10	29	
32	9.77473	17	9.86974	26	0.13026	9.90499	9	28	
33	9.77490	17	9.87000	27	0.13000	9.90490	10	27	
34	9.77507	17	9.87027	26	0.12973	9.90480	9	26	
35	9.77524	17	9.87053	26	0.12947	9.90471	9	25	27 26
36	9.77541	17	9.87079	27	0.12921	9.90462	10	24	1 0.5 0.4
37	9.77558	17	9.87106	26	0.12894	9.90452	9	23	2 0.9 0.9
38	9.77575	17	9.87132	26	0.12868	9.90443	9	22	3 1.4 1.3
39	9.77592	17	9.87158	27	0.12842	9.90434	10	21	4 1.8 1.7
40	9.77609	17	9.87185	26	0.12815	9.90424	9	20	5 2.3 2.2
41	9.77626	17	9.87211	27	0.12789	9.90415	10	19	6 2.7 2.6
42	9.77643	17	9.87238	26	0.12762	9.90405	9	18	7 3.2 3.0
43	9.77660	17	9.87264	26	0.12736	9.90396	10	17	8 3.6 3.5
44	9.77677	17	9.87290	27	0.12710	9.90386	9	16	9 4.1 3.9
45	9.77694	17	9.87317	26	0.12683	9.90377	10	15	10 4.5 4.3
46	9.77711	17	9.87343	26	0.12657	9.90368	9	14	20 9.0 8.7
47	9.77728	16	9.87369	27	0.12631	9.90358	10	13	30 13.5 13.0
48	9.77744	17	9.87396	26	0.12604	9.90349	9	12	40 18.0 17.3
49	9.77761	17	9.87422	26	0.12578	9.90339	10	11	50 22.5 21.7
50	9.77778	17	9.87448	27	0.12552	9.90330	9	10	
51	9.77795	17	9.87475	26	0.12525	9.90320	10	9	17 16
52	9.77812	17	9.87501	26	0.12499	9.90311	9	8	1 0.3 0.3
53	9.77829	17	9.87527	26	0.12473	9.90301	10	7	2 0.6 0.5
54	9.77846	16	9.87554	26	0.12446	9.90292	9	6	3 0.9 0.8
55	9.77862	17	9.87580	26	0.12420	9.90282	10	5	4 1.1 1.1
56	9.77879	17	9.87606	27	0.12394	9.90273	9	4	5 1.4 1.3
57	9.77896	17	9.87633	26	0.12367	9.90263	10	3	6 1.7 1.6
58	9.77913	17	9.87659	26	0.12341	9.90254	9	2	7 2.0 1.9
59	9.77930	16	9.87685	26	0.12315	9.90244	10	1	8 2.3 2.1
60	9.77946	17	9.87711	27	0.12289	9.90235	9	0	9 2.6 2.4
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

53°

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.77946		9.87711		0.12289	9.90235		60	
1	9.77963	17	9.87738	27	0.12262	9.90225	10	59	
2	9.77980	17	9.87764	26	0.12236	9.90216	9	58	
3	9.77997	17	9.87790	26	0.12210	9.90206	10	57	
4	9.78013	16	9.87817	27	0.12183	9.90197	9	56	
5	9.78030	17	9.87843	26	0.12157	9.90187	10	55	27 26
6	9.78047	17	9.87869	26	0.12131	9.90178	9	54	1 0.5 0.4
7	9.78063	16	9.87895	26	0.12105	9.90168	10	53	2 0.9 0.9
8	9.78080	17	9.87922	27	0.12078	9.90159	9	52	3 1.4 1.3
9	9.78097	17	9.87948	26	0.12052	9.90149	10	51	4 1.8 1.7
10	9.78113	16	9.87974	26	0.12026	9.90139	9	50	5 2.3 2.2
11	9.78130	17	9.88000	27	0.12000	9.90130	10	49	6 2.7 2.6
12	9.78147	16	9.88027	26	0.11973	9.90120	9	48	7 3.2 3.0
13	9.78163	17	9.88053	26	0.11947	9.90111	10	47	8 3.6 3.5
14	9.78180	17	9.88079	26	0.11921	9.90101	9	46	9 4.1 3.9
15	9.78197	16	9.88105	26	0.11895	9.90091	10	45	10 4.5 4.3
16	9.78213	17	9.88131	27	0.11869	9.90082	9	44	20 9.0 8.7
17	9.78230	16	9.88158	26	0.11842	9.90072	10	43	30 13.5 13.0
18	9.78246	17	9.88184	26	0.11816	9.90063	9	42	40 18.0 17.3
19	9.78263	17	9.88210	26	0.11790	9.90053	10	41	50 22.5 21.7
20	9.78280	16	9.88236	26	0.11764	9.90043	9	40	
21	9.78296	17	9.88262	27	0.11738	9.90034	10	39	17 16
22	9.78313	16	9.88289	26	0.11711	9.90024	9	38	1 0.3 0.3
23	9.78329	17	9.88315	26	0.11685	9.90014	10	37	2 0.6 0.5
24	9.78346	16	9.88341	26	0.11659	9.90005	9	36	3 0.9 0.8
25	9.78362	17	9.88367	26	0.11633	9.89995	10	35	4 1.1 1.1
26	9.78379	16	9.88393	27	0.11607	9.89985	9	34	5 1.4 1.3
27	9.78395	17	9.88420	26	0.11580	9.89976	10	33	6 1.7 1.6
28	9.78412	16	9.88446	26	0.11554	9.89966	9	32	7 2.0 1.9
29	9.78428	17	9.88472	26	0.11528	9.89956	10	31	8 2.3 2.1
30	9.78445	16	9.88498	26	0.11502	9.89947	9	30	9 2.6 2.4
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

37°

10'

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.78445		9.88498		0.11502	9.89947		30	
31	9.78461	16	9.88524	26	0.11476	9.89937	10	29	
32	9.78478	17	9.88550	26	0.11450	9.89927	9	28	
33	9.78494	16	9.88577	27	0.11423	9.89918	10	27	
34	9.78510	16	9.88603	26	0.11397	9.89908	10	26	
35	9.78527	17	9.88629	26	0.11371	9.89898	10	25	27 23
36	9.78543	16	9.88655	26	0.11345	9.89888	10	24	1 0.5 0.4
37	9.78560	17	9.88681	26	0.11319	9.89879	9	23	2 0.9 0.9
38	9.78576	16	9.88707	26	0.11293	9.89869	10	22	3 1.4 1.3
39	9.78592	16	9.88733	26	0.11267	9.89859	10	21	4 1.8 1.7
40	9.78609	17	9.88759	26	0.11241	9.89849	10	20	5 2.3 2.2
41	9.78625	16	9.88786	27	0.11214	9.89840	9	19	6 2.7 2.6
42	9.78642	17	9.88812	26	0.11188	9.89830	10	18	7 3.2 3.0
43	9.78658	16	9.88838	26	0.11162	9.89820	10	17	8 3.6 3.5
44	9.78674	16	9.88864	26	0.11136	9.89810	10	16	9 4.1 3.9
45	9.78691	17	9.88890	26	0.11110	9.89801	9	15	10 4.5 4.3
46	9.78707	16	9.88916	26	0.11084	9.89791	10	14	20 9.0 8.7
47	9.78723	16	9.88942	26	0.11058	9.89781	10	13	30 13.5 13.0
48	9.78739	17	9.88968	26	0.11032	9.89771	10	12	40 18.0 17.3
49	9.78756	16	9.88994	26	0.11006	9.89761	9	11	50 22.5 21.7
50	9.78772	16	9.89020	26	0.10980	9.89752	10	10	
51	9.78788	17	9.89046	27	0.10954	9.89742	10	9	17 16
52	9.78805	16	9.89073	26	0.10927	9.89732	10	8	1 0.3 0.3
53	9.78821	16	9.89099	26	0.10901	9.89722	10	7	2 0.6 0.5
54	9.78837	16	9.89125	26	0.10875	9.89712	10	6	3 0.9 0.8
55	9.78853	16	9.89151	26	0.10849	9.89702	10	5	4 1.1 1.1
56	9.78869	17	9.89177	26	0.10823	9.89693	9	4	5 1.4 1.3
57	9.78886	16	9.89203	26	0.10797	9.89683	10	3	6 1.7 1.6
58	9.78902	16	9.89229	26	0.10771	9.89673	10	2	7 2.0 1.9
59	9.78918	16	9.89255	26	0.10745	9.89663	10	1	8 2.3 2.1
60	9.78934	16	9.89281	26	0.10719	9.89653	10	0	9 2.6 2.4
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

52°

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.78934		9.89281		0.10719	9.89653		60	
1	9.78950	16		26			10	59	
2	9.78967	17	9.89307	26	0.10693	9.89643	10	58	
3	9.78983	16	9.89333	26	0.10667	9.89633	9	57	
4	9.78999	16	9.89359	26	0.10641	9.89624	10	56	
		16	9.89385	26	0.10615	9.89614	10		26 25
5	9.79015		9.89411		0.10589	9.89604		55	1 0.4 0.4
		16		26			10		2 0.9 0.8
6	9.79031	16	9.89437	26	0.10563	9.89594	10	54	3 1.3 1.3
7	9.79047	16	9.89463	26	0.10537	9.89584	10	53	4 1.7 1.7
8	9.79063	16	9.89489	26	0.10511	9.89574	10	52	5 2.2 2.1
9	9.79079	16	9.89515	26	0.10485	9.89564	10	51	6 2.6 2.5
		16		26			10		7 3.0 2.9
10	9.79095		9.89541		0.10459	9.89554		50	8 3.5 3.3
		16		26			10		9 3.9 3.8
11	9.79111	16	9.89567	26	0.10433	9.89544	10	49	10 4.3 4.2
12	9.79128	17	9.89593	26	0.10407	9.89534	10	48	20 8.7 8.3
13	9.79144	16	9.89619	26	0.10381	9.89524	10	47	30 13.0 12.5
14	9.79160	16	9.89645	26	0.10355	9.89514	10	46	40 17.3 16.7
		16		26			10		50 21.7 20.8
15	9.79176		9.89671		0.10329	9.89504		45	
		16		26			10		17 16
16	9.79192	16	9.89697	26	0.10303	9.89495	9	44	1 0.3 0.3
17	9.79208	16	9.89723	26	0.10277	9.89485	10	43	2 0.6 0.5
18	9.79224	16	9.89749	26	0.10251	9.89475	10	42	3 0.9 0.8
19	9.79240	16	9.89775	26	0.10225	9.89465	10	41	4 1.1 1.1
		16		26			10		5 1.4 1.3
20	9.79256		9.89801		0.10199	9.89455		40	6 1.7 1.6
		16		26			10		7 2.0 1.9
21	9.79272	16	9.89827	26	0.10173	9.89445	10	39	8 2.3 2.1
22	9.79288	16	9.89853	26	0.10147	9.89435	10	38	9 2.6 2.4
23	9.79304	16	9.89879	26	0.10121	9.89425	10	37	10 2.8 2.7
24	9.79319	15	9.89905	26	0.10095	9.89415	10	36	20 5.7 5.3
		16		26			10		30 8.5 8.0
25	9.79335		9.89931		0.10069	9.89405		35	40 11.3 10.7
		16		26			10		50 14.2 13.3
26	9.79351	16	9.89957	26	0.10043	9.89395	10	34	9 10
27	9.79367	16	9.89983	26	0.10017	9.89385	10	33	10 1.5 1.7
28	9.79383	16	9.90009	26	0.09991	9.89375	10	32	20 3.0 3.3
29	9.79399	16	9.90035	26	0.09965	9.89364	11	31	30 4.5 5.0
		16		26			10		40 6.0 6.7
30	9.79415		9.90061		0.09939	9.89354		30	50 7.5 8.3
		16		25			10		
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

38°

107

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.79415		9.90061		0.09939	9.89354		30	
31	9.79431	16	9.90086	25	0.09914	9.89344	10	29	
32	9.79447	16	9.90112	26	0.09888	9.89334	10	28	
33	9.79463	16	9.90138	26	0.09862	9.89324	10	27	
34	9.79478	15	9.90164	26	0.09836	9.89314	10	26	26 25
35	9.79494	16	9.90190	26	0.09810	9.89304	10	25	1  0.4  0.4 2  0.9  0.8 3  1.3  1.3 4  1.7  1.7 5  2.2  2.1 6  2.6  2.5 7  3.0  2.9 8  3.5  3.3 9  3.9  3.8 10  4.3  4.2 20  8.7  8.3 30  13.0  12.5 40  17.3  16.7 50  21.7  20.8
36	9.79510	16	9.90216	26	0.09784	9.89294	10	24	
37	9.79526	16	9.90242	26	0.09758	9.89284	10	23	
38	9.79542	16	9.90268	26	0.09732	9.89274	10	22	
39	9.79558	16	9.90294	26	0.09706	9.89264	10	21	
40	9.79573	15	9.90320	26	0.09680	9.89254	10	20	
41	9.79589	16	9.90346	26	0.09654	9.89244	10	19	
42	9.79605	16	9.90371	25	0.09629	9.89233	11	18	16 15
43	9.79621	16	9.90397	26	0.09603	9.89223	10	17	1  0.3  0.3 2  0.5  0.5 3  0.8  0.8 4  1.1  1.0 5  1.3  1.3 6  1.6  1.5 7  1.9  1.8 8  2.1  2.0 9  2.7  2.3 10  2.7  2.5 20  5.3  5.0 30  8.0  7.5 40  10.7  10.0 50  13.3  12.5
44	9.79636	15	9.90423	26	0.09577	9.89213	10	16	
45	9.79652	16	9.90449	26	0.09551	9.89203	10	15	
46	9.79668	16	9.90475	26	0.09525	9.89193	10	14	
47	9.79684	16	9.90501	26	0.09499	9.89183	10	13	
48	9.79699	15	9.90527	26	0.09473	9.89173	10	12	
49	9.79715	16	9.90553	26	0.09447	9.89162	11	11	
50	9.79731	16	9.90578	25	0.09422	9.89152	10	10	
51	9.79746	15	9.90604	26	0.09396	9.89142	10	9	10 11
52	9.79762	16	9.90630	26	0.09370	9.89132	10	8	1  0.2  0.2 2  0.3  0.4 3  0.5  0.6 4  0.7  0.7 5  0.8  0.9 6  1.0  1.1 7  1.2  1.3 8  1.3  1.5 9  1.5  1.7 10  1.7  1.8 20  3.3  3.7 30  5.0  5.5 40  6.7  7.3 50  8.3  9.2
53	9.79778	16	9.90656	26	0.09344	9.89122	10	7	
54	9.79793	15	9.90682	26	0.09318	9.89112	10	6	
55	9.79809	16	9.90708	26	0.09292	9.89101	11	5	
56	9.79825	16	9.90734	26	0.09266	9.89091	10	4	
57	9.79840	15	9.90759	25	0.09241	9.89081	10	3	
58	9.79856	16	9.90785	26	0.09215	9.89071	10	2	
59	9.79872	16	9.90811	26	0.09189	9.89060	11	1	
60	9.79887	15	9.90837	26	0.09163	9.89050	10	0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

51°





Mia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.80351		9.91610		0.08390	9.88741		30	
31	9.80366	15	9.91636	26	0.08364	9.88730	11	29	
32	9.80382	16	9.91662	26	0.08338	9.88720	10	28	26 25
33	9.80397	15	9.91688	26	0.08312	9.88709	11	27	1 0.4 0.4
34	9.80412	15	9.91713	25	0.08287	9.88699	10	26	2 0.9 0.8
35	9.80428	16	9.91739	26	0.08261	9.88688	11	25	3 1.3 1.3
36	9.80443	15	9.91765	26	0.08235	9.88678	10	24	4 1.7 1.7
37	9.80458	15	9.91791	26	0.08209	9.88668	11	23	5 2.2 2.1
38	9.80473	16	9.91816	25	0.08184	9.88657	10	22	6 2.6 2.5
39	9.80489	15	9.91842	26	0.08158	9.88647	11	21	7 3.0 2.9
40	9.80504	15	9.91868	26	0.08132	9.88636	10	20	8 3.5 3.3
41	9.80519	15	9.91893	25	0.08107	9.88626	11	19	9 3.9 3.8
42	9.80534	16	9.91919	26	0.08081	9.88615	10	18	10 4.3 4.2
43	9.80550	15	9.91945	26	0.08055	9.88605	11	17	20 8.7 8.3
44	9.80565	15	9.91971	26	0.08029	9.88594	10	16	30 13.0 12.5
45	9.80580	15	9.91996	25	0.08004	9.88584	11	15	40 17.3 16.7
46	9.80595	15	9.92022	26	0.07978	9.88573	10	14	50 21.7 20.8
47	9.80610	15	9.92048	26	0.07952	9.88563	11	13	16 15
48	9.80625	16	9.92073	25	0.07927	9.88552	10	12	1 0.3 0.3
49	9.80641	15	9.92099	26	0.07901	9.88542	11	11	2 0.5 0.5
50	9.80656	15	9.92125	26	0.07875	9.88531	10	10	3 0.8 0.8
51	9.80671	15	9.92150	25	0.07850	9.88521	11	9	4 1.1 1.0
52	9.80686	15	9.92176	26	0.07824	9.88510	10	8	5 1.3 1.3
53	9.80701	15	9.92202	25	0.07798	9.88499	11	7	6 1.6 1.5
54	9.80716	15	9.92227	26	0.07773	9.88489	10	6	7 1.9 1.8
55	9.80731	15	9.92253	26	0.07747	9.88478	11	5	8 2.1 2.0
56	9.80746	16	9.92279	25	0.07721	9.88468	10	4	9 2.4 2.3
57	9.80762	15	9.92304	26	0.07696	9.88457	11	3	10 2.7 2.5
58	9.80777	15	9.92330	26	0.07670	9.88447	10	2	20 5.3 5.0
59	9.80792	15	9.92356	25	0.07644	9.88436	11	1	30 8.0 7.5
60	9.80807	15	9.92381	26	0.07619	9.88425	10	0	40 10.7 10.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mia.	PP.

Mia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.80807	15	9.92381	26	0.07619	9.88425	10	60	
1	9.80822	15	9.92407	26	0.07593	9.88415	11	59	
2	9.80837	15	9.92433	25	0.07567	9.88404	10	58	
3	9.80852	15	9.92458	26	0.07542	9.88394	11	57	26 25
4	9.80867	15	9.92484	26	0.07516	9.88383	11	56	1 0.4 0.4
									2 0.9 0.8
									3 1.3 1.3
									4 1.7 1.7
5	9.80882	15	9.92510	26	0.07490	9.88372	11	55	5 2.2 2.1
									6 2.6 2.5
									7 3.0 2.9
6	9.80897	15	9.92535	26	0.07465	9.88362	11	54	8 3.5 3.3
7	9.80912	15	9.92561	26	0.07439	9.88351	11	53	9 3.9 3.8
8	9.80927	15	9.92587	25	0.07413	9.88340	10	52	10 4.3 4.2
9	9.80942	15	9.92612	26	0.07388	9.88330	11	51	20 8.7 8.3
									30 13.0 12.5
									40 17.3 16.7
									50 21.7 20.8
10	9.80957	15	9.92638	25	0.07362	9.88319	11	50	
11	9.80972	15	9.92663	26	0.07337	9.88308	10	49	15 14
12	9.80987	15	9.92689	26	0.07311	9.88298	11	48	1 0.3 0.2
13	9.81002	15	9.92715	25	0.07285	9.88287	11	47	2 0.5 0.5
14	9.81017	15	9.92740	26	0.07260	9.88276	11	46	3 0.8 0.7
									4 1.0 0.9
									5 1.3 1.2
15	9.81032	15	9.92766	26	0.07234	9.88266	11	45	6 1.5 1.4
									7 1.8 1.6
									8 2.0 1.9
16	9.81047	14	9.92792	25	0.07208	9.88255	11	44	9 2.3 2.1
17	9.81061	15	9.92817	26	0.07183	9.88244	10	43	10 2.5 2.3
18	9.81076	15	9.92843	25	0.07157	9.88234	11	42	20 5.0 4.7
19	9.81091	15	9.92868	26	0.07132	9.88223	11	41	30 7.5 7.0
									40 10.0 9.3
									50 12.5 11.7
20	9.81106	15	9.92894	26	0.07106	9.88212	11	40	
21	9.81121	15	9.92920	25	0.07080	9.88201	10	39	10 11
22	9.81136	15	9.92945	26	0.07055	9.88191	11	38	1 0.2 0.2
23	9.81151	15	9.92971	25	0.07029	9.88180	11	37	2 0.3 0.4
24	9.81166	14	9.92996	26	0.07004	9.88169	11	36	3 0.5 0.6
									4 0.7 0.7
									5 0.8 0.9
25	9.81180	15	9.93022	26	0.06978	9.88158	11	35	6 1.0 1.1
									7 1.2 1.3
									8 1.3 1.5
									9 1.5 1.7
26	9.81195	15	9.93048	25	0.06952	9.88148	11	34	10 1.7 1.8
27	9.81210	15	9.93073	26	0.06927	9.88137	11	33	20 3.3 3.7
28	9.81225	15	9.93099	25	0.06901	9.88126	11	32	30 5.0 5.5
29	9.81240	14	9.93124	26	0.06876	9.88115	11	31	40 6.7 7.3
									50 8.3 9.2
30	9.81254		9.93150		0.06850	9.88105		30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mia.	PP.

lia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.81254		9.93150		0.06850	9.88105		30	
31	9.81269	15	9.93175	25	0.06825	9.88094	11	29	
32	9.81284	15	9.93201	26	0.06799	9.88083	11	28	
33	9.81299	15	9.93227	26	0.06773	9.88072	11	27	26 25
34	9.81314	15	9.93252	25	0.06748	9.88061	11	26	1 0.4 0.4 2 0.9 0.8 3 1.3 1.3 4 1.7 1.7
35	9.81328	14	9.93278	26	0.06722	9.88051	10	25	5 2.2 2.1 6 2.6 2.5 7 3.0 2.9
36	9.81343	15	9.93303	25	0.06697	9.88040	11	24	8 3.5 3.3 9 3.9 3.8
37	9.81358	15	9.93329	26	0.06671	9.88029	11	23	10 4.3 4.2 20 8.7 8.3
38	9.81372	14	9.93354	25	0.06646	9.88018	11	22	30 13.0 12.5 40 17.3 16.7
39	9.81387	15	9.93380	26	0.06620	9.88007	11	21	50 21.7 20.8
40	9.81402	15	9.93406	25	0.06594	9.87996	11	20	
41	9.81417	14	9.93431	26	0.06569	9.87985	10	19	15 14
42	9.81431	15	9.93457	25	0.06543	9.87975	11	18	1 0.3 0.2 2 0.5 0.5
43	9.81446	15	9.93482	26	0.06518	9.87964	11	17	3 0.8 0.7 4 1.0 0.9
44	9.81461	14	9.93508	25	0.06492	9.87953	11	16	5 1.3 1.2 6 1.5 1.4
45	9.81475	15	9.93533	26	0.06467	9.87942	11	15	7 1.8 1.6 8 2.0 1.9
46	9.81490	15	9.93559	25	0.06441	9.87931	11	14	9 2.3 2.1 10 2.5 2.3
47	9.81505	14	9.93584	26	0.06416	9.87920	11	13	20 5.0 4.7 30 7.5 7.0
48	9.81519	15	9.93610	26	0.06390	9.87909	11	12	40 10.0 9.3 50 12.5 11.7
49	9.81534	15	9.93636	25	0.06364	9.87898	11	11	
50	9.81549	14	9.93661	26	0.06339	9.87887	10	10	
51	9.81563	15	9.93687	25	0.06313	9.87877	11	9	10 11
52	9.81578	14	9.93712	26	0.06288	9.87866	11	8	1 0.2 0.2 2 0.3 0.4
53	9.81592	15	9.93738	25	0.06262	9.87855	11	7	3 0.5 0.6 4 0.7 0.7
54	9.81607	15	9.93763	26	0.06237	9.87844	11	6	5 0.8 0.9 6 1.0 1.1
55	9.81622	14	9.93789	25	0.06211	9.87833	11	5	7 1.2 1.3 8 1.3 1.5
56	9.81636	15	9.93814	26	0.06186	9.87822	11	4	9 1.5 1.7 10 1.7 1.8
57	9.81651	14	9.93840	25	0.06160	9.87811	11	3	20 3.3 3.7 30 5.0 5.5
58	9.81665	15	9.93865	26	0.06135	9.87800	11	2	40 8.7 7.3 50 8.3 9.2
59	9.81680	14	9.93891	25	0.06109	9.87789	11	1	
60	9.81694		9.93916		0.06084	9.87778		0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.81694		9.93916		0.06084	9.87778		60	
1	9.81709	15	9.93942	26	0.06058	9.87767	11	59	
2	9.81723	14	9.93967	25	0.06033	9.87756	11	58	
3	9.81738	15	9.93993	26	0.06007	9.87745	11	57	26 25
4	9.81752	14	9.94018	25	0.05982	9.87734	11	56	1 0.4 0.4 2 0.9 0.8 3 1.3 1.3 4 1.7 1.7 5 2.2 2.1 6 2.6 2.5 7 3.0 2.9 8 3.5 3.3 9 3.9 3.8 10 4.3 4.2 20 8.7 8.3 30 13.0 12.5 40 17.3 16.7 50 21.7 20.8
5	9.81767	15	9.94044	26	0.05956	9.87723	11	55	
6	9.81781	14	9.94069	25	0.05931	9.87712	11	54	
7	9.81796	15	9.94095	26	0.05905	9.87701	11	53	
8	9.81810	14	9.94120	25	0.05880	9.87690	11	52	
9	9.81825	15	9.94146	26	0.05854	9.87679	11	51	
10	9.81839	14	9.94171	25	0.05829	9.87668	11	50	
11	9.81854	15	9.94197	26	0.05803	9.87657	11	49	
12	9.81868	14	9.94222	25	0.05778	9.87646	11	48	15 14
13	9.81882	15	9.94248	26	0.05752	9.87635	11	47	1 0.3 0.2 2 0.5 0.5 3 0.8 0.7 4 1.0 0.9 5 1.3 1.2 6 1.5 1.4 7 1.8 1.6 8 2.0 1.9 9 2.3 2.1 10 2.5 2.3 20 5.0 4.7 30 7.5 7.0 40 10.0 9.3 50 12.5 11.7
14	9.81897	14	9.94273	25	0.05727	9.87624	11	46	
15	9.81911	15	9.94299	26	0.05701	9.87613	11	45	
16	9.81926	14	9.94324	25	0.05676	9.87601	12	44	
17	9.81940	15	9.94350	26	0.05650	9.87590	11	43	
18	9.81955	14	9.94375	25	0.05625	9.87579	11	42	
19	9.81969	15	9.94401	26	0.05599	9.87568	11	41	
20	9.81983	14	9.94426	25	0.05574	9.87557	11	40	
21	9.81998	15	9.94452	26	0.05548	9.87546	11	39	11 12
22	9.82012	14	9.94477	25	0.05523	9.87535	11	38	1 0.2 0.2 2 0.4 0.4 3 0.6 0.6 4 0.7 0.8 5 0.9 1.0 6 1.1 1.2 7 1.3 1.4 8 1.5 1.6 9 1.7 1.8 10 1.8 2.0 20 3.7 4.0 30 5.5 6.0 40 7.3 8.0 50 9.2 10.0
23	9.82026	15	9.94503	26	0.05497	9.87524	11	37	
24	9.82041	14	9.94528	25	0.05472	9.87513	11	36	
25	9.82055	15	9.94554	26	0.05446	9.87501	12	35	
26	9.82069	14	9.94579	25	0.05421	9.87490	11	34	
27	9.82084	15	9.94604	26	0.05396	9.87479	11	33	
28	9.82098	14	9.94630	25	0.05370	9.87468	11	32	
29	9.82112	15	9.94655	26	0.05345	9.87457	11	31	
30	9.82126	14	9.94681	25	0.05319	9.87446	11	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.82126	15	9.94681	25	0.05319	9.87446	12	30	
31	9.82141	14	9.94706	26	0.05294	9.87434	11	29	
32	9.82155	14	9.94732	25	0.05268	9.87423	11	28	26 25
33	9.82169	15	9.94757	26	0.05243	9.87412	11	27	1 0.4 0.4
34	9.82184	14	9.94783	25	0.05217	9.87401	11	26	2 0.9 0.8
35	9.82198	14	9.94808	26	0.05192	9.87390	12	25	3 1.3 1.3
36	9.82212	14	9.94834	25	0.05166	9.87378	11	24	4 1.7 1.7
37	9.82226	14	9.94859	26	0.05141	9.87367	11	23	5 2.2 2.1
38	9.82240	15	9.94884	25	0.05116	9.87356	11	22	6 2.6 2.5
39	9.82255	14	9.94910	26	0.05090	9.87345	11	21	7 3.0 2.9
40	9.82269	14	9.94935	25	0.05065	9.87334	12	20	8 3.5 3.3
41	9.82283	14	9.94961	26	0.05039	9.87322	11	19	9 3.9 3.8
42	9.82297	14	9.94986	25	0.05014	9.87311	11	18	10 4.3 4.2
43	9.82311	15	9.95012	26	0.04988	9.87300	12	17	20 8.7 8.3
44	9.82326	14	9.95037	25	0.04963	9.87288	11	16	30 13.0 12.5
45	9.82340	14	9.95062	26	0.04938	9.87277	11	15	40 17.3 16.7
46	9.82354	14	9.95088	25	0.04912	9.87266	11	14	50 21.7 20.8
47	9.82368	14	9.95113	26	0.04887	9.87255	12	13	
48	9.82382	14	9.95139	25	0.04861	9.87243	11	12	15 14
49	9.82396	14	9.95164	26	0.04836	9.87232	12	11	1 0.3 0.2
50	9.82410	14	9.95190	25	0.04810	9.87221	11	10	2 0.5 0.5
51	9.82424	15	9.95215	26	0.04785	9.87209	12	9	3 0.8 0.7
52	9.82439	14	9.95240	25	0.04760	9.87198	11	8	4 1.0 0.9
53	9.82453	14	9.95266	26	0.04734	9.87187	12	7	5 1.3 1.2
54	9.82467	14	9.95291	25	0.04709	9.87175	11	6	6 1.5 1.4
55	9.82481	14	9.95317	26	0.04683	9.87164	12	5	7 1.8 1.6
56	9.82495	14	9.95342	25	0.04658	9.87153	11	4	8 2.0 1.9
57	9.82509	14	9.95368	26	0.04632	9.87141	12	3	9 2.3 2.1
58	9.82523	14	9.95393	25	0.04607	9.87130	11	2	10 2.5 2.3
59	9.82537	14	9.95418	26	0.04582	9.87119	12	1	20 5.0 4.7
60	9.82551	14	9.95444	25	0.04556	9.87107	11	0	30 7.5 7.0
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.82551		9.95444		0.04556	9.87107		60	
1	9.82565	14	9.95469	25	0.04531	9.87096	11	59	
2	9.82579	14	9.95495	26	0.04505	9.87085	11	58	
3	9.82593	14	9.95520	25	0.04480	9.87073	12	57	26 25
4	9.82607	14	9.95545	25	0.04455	9.87062	11	56	1 0.4 0.4
5	9.82621	14	9.95571	20	0.04429	9.87050	12	55	2 0.9 0.8
6	9.82635	14	9.95596	25	0.04404	9.87039	11	54	3 1.3 1.3
7	9.82649	14	9.95622	26	0.04378	9.87028	12	53	4 1.7 1.7
8	9.82663	14	9.95647	25	0.04353	9.87016	11	52	5 2.2 2.1
9	9.82677	14	9.95672	25	0.04328	9.87005	12	51	6 2.6 2.5
10	9.82691	14	9.95698	26	0.04302	9.86993	11	50	7 3.0 2.9
11	9.82705	14	9.95723	25	0.04277	9.86982	12	49	8 3.5 3.3
12	9.82719	14	9.95748	26	0.04252	9.86970	11	48	9 3.9 3.8
13	9.82733	14	9.95774	25	0.04226	9.86959	12	47	10 4.3 4.2
14	9.82747	14	9.95799	26	0.04201	9.86947	11	46	21 8.7 8.3
15	9.82761	14	9.95825	25	0.04175	9.86936	12	45	30 13.0 12.5
16	9.82775	13	9.95850	26	0.04150	9.86924	11	44	40 17.3 16.7
17	9.82788	14	9.95875	25	0.04125	9.86913	12	43	50 21.7 20.8
18	9.82802	14	9.95901	26	0.04099	9.86902	11	42	
19	9.82816	14	9.95926	25	0.04074	9.86890	12	41	
20	9.82830	14	9.95952	26	0.04048	9.86879	11	40	
21	9.82844	14	9.95977	25	0.04023	9.86867	12	39	
22	9.82858	14	9.96002	26	0.03998	9.86855	11	38	11 12
23	9.82872	14	9.96028	25	0.03972	9.86844	12	37	1 0.2 0.2
24	9.82885	13	9.96053	26	0.03947	9.86832	11	36	2 0.4 0.4
25	9.82899	14	9.96078	25	0.03922	9.86821	12	35	3 0.6 0.6
26	9.82913	14	9.96104	26	0.03896	9.86809	11	34	4 0.7 0.8
27	9.82927	14	9.96129	25	0.03871	9.86798	12	33	5 0.9 1.0
28	9.82941	14	9.96155	26	0.03845	9.86786	11	32	6 1.1 1.2
29	9.82955	14	9.96180	25	0.03820	9.86775	12	31	7 1.3 1.4
30	9.82968	13	9.96205	26	0.03795	9.86763	11	30	8 1.5 1.6
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.82968	14	9.96205	26	0.03795	9.86763	11	30	
31	9.82982	14	9.96231	25	0.03769	9.86752	12	29	
32	9.82996	14	9.96256	25	0.03744	9.86740	12	28	26 25
33	9.83010	13	9.96281	26	0.03719	9.86728	11	27	1 0.4 0.4
34	9.83023	14	9.96307	25	0.03693	9.86717	12	26	2 0.9 0.8
35	9.83037	14	9.96332	25	0.03668	9.86705	11	25	3 1.3 1.3
36	9.83051	14	9.96357	26	0.03643	9.86694	12	24	4 1.7 1.7
37	9.83065	13	9.96383	25	0.03617	9.86682	12	23	5 2.2 2.1
38	9.83078	14	9.96408	25	0.03592	9.86670	11	22	6 2.6 2.5
39	9.83092	14	9.96433	26	0.03567	9.86659	12	21	7 3.0 2.9
40	9.83106	14	9.96459	25	0.03541	9.86647	12	20	8 3.5 3.3
41	9.83120	13	9.96484	26	0.03516	9.86635	11	19	9 3.9 3.8
42	9.83133	14	9.96510	25	0.03490	9.86624	12	18	10 4.3 4.2
43	9.83147	14	9.96535	25	0.03465	9.86612	12	17	20 8.7 8.3
44	9.83161	13	9.96560	26	0.03440	9.86600	11	16	30 13.0 12.5
45	9.83174	14	9.96586	25	0.03414	9.86589	12	15	40 17.3 16.7
46	9.83188	14	9.96611	25	0.03389	9.86577	12	14	50 21.7 20.8
47	9.83202	13	9.96636	26	0.03364	9.86565	11	13	
48	9.83215	14	9.96662	25	0.03338	9.86554	12	12	
49	9.83229	13	9.96687	25	0.03313	9.86542	12	11	
50	9.83242	14	9.96712	26	0.03288	9.86530	12	10	
51	9.83256	14	9.96738	25	0.03262	9.86518	11	9	
52	9.83270	13	9.96763	25	0.03237	9.86507	12	8	
53	9.83283	14	9.96788	26	0.03212	9.86495	12	7	
54	9.83297	13	9.96814	25	0.03186	9.86483	11	6	
55	9.83310	14	9.96839	25	0.03161	9.86472	12	5	
56	9.83324	14	9.96864	26	0.03136	9.86460	12	4	
57	9.83338	13	9.96890	25	0.03110	9.86448	12	3	
58	9.83351	14	9.96915	25	0.03085	9.86436	11	2	
59	9.83365	13	9.96940	26	0.03060	9.86425	12	1	
60	9.83378		9.96966		0.03034	9.86413		0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.



Nm.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.83378		9.96966		0.03034	9.86413		60	
1	9.83392	14	9.96991	25	0.03009	9.86401	12	59	
2	9.83405	13	9.97016	25	0.02984	9.86389	12	58	
3	9.83419	14	9.97042	26	0.02958	9.86377	12	57	26 25
4	9.83432	13	9.97067	25	0.02933	9.86366	11	56	1 0.4 0.4
		14		25			12		2 0.9 0.8
5	9.83446		9.97092		0.02908	9.86354		55	3 1.3 1.3
6	9.83459	14	9.97118	26	0.02882	9.86342	12	54	4 1.7 1.7
7	9.83473	13	9.97143	25	0.02857	9.86330	12	53	5 2.2 2.1
8	9.83486	14	9.97168	25	0.02832	9.86318	12	52	6 2.6 2.5
9	9.83500	13	9.97193	26	0.02807	9.86306	11	51	7 3.0 2.9
		14		25			12		8 3.5 3.3
10	9.83513		9.97219		0.02781	9.86295		50	9 3.9 3.8
11	9.83527	14	9.97244	25	0.02756	9.86283	12	49	10 4.3 4.2
12	9.83540	13	9.97269	25	0.02731	9.86271	12	48	20 8.7 8.3
13	9.83554	14	9.97295	25	0.02705	9.86259	12	47	30 13.0 12.5
14	9.83567	13	9.97320	25	0.02680	9.86247	12	46	40 17.3 16.7
		14		25			12		50 21.7 20.8
15	9.83581		9.97345		0.02655	9.86235		45	
16	9.83594	13	9.97371	26	0.02629	9.86223	12	44	14 13
17	9.83608	14	9.97396	25	0.02604	9.86211	12	43	1 0.2 0.2
18	9.83621	13	9.97421	25	0.02579	9.86200	11	42	2 0.5 0.4
19	9.83634	14	9.97447	26	0.02553	9.86188	12	41	3 0.7 0.7
		13		25			12		4 0.9 0.9
20	9.83648		9.97472		0.02528	9.86176		40	5 1.2 1.1
21	9.83661	13	9.97497	26	0.02503	9.86164	12	39	6 1.4 1.3
22	9.83674	14	9.97523	25	0.02477	9.86152	12	38	7 1.6 1.5
23	9.83688	13	9.97548	25	0.02452	9.86140	12	37	8 1.9 1.7
24	9.83701	14	9.97573	25	0.02427	9.86128	12	36	9 2.1 2.0
		13		26			12		10 2.3 2.2
25	9.83715		9.97598		0.02402	9.86116		35	20 4.7 4.3
26	9.83728	13	9.97624	25	0.02376	9.86104	12	34	30 7.0 6.5
27	9.83741	14	9.97649	25	0.02351	9.86092	12	33	40 9.3 8.7
28	9.83755	13	9.97674	26	0.02326	9.86080	12	32	50 11.7 10.8
29	9.83768	13	9.97700	25	0.02300	9.86068	12	31	
30	9.83781		9.97725		0.02275	9.86056		30	
		13		25			12		11 12
	Cosine	d	Cotang.	d	Tang.	Sine	d	Nm.	10 0.2 0.2
									20 0.4 0.4
									30 0.6 0.6
									40 0.7 0.8
									50 0.9 1.0
									6 1.1 1.2
									7 1.3 1.4
									8 1.5 1.6
									9 1.7 1.8
									10 1.8 2.0
									20 3.7 4.0
									30 5.5 6.0
									40 7.3 8.0
									50 9.2 10.0
									PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.83781		9.97725		0.02275	9.86056		30	
31	9.83795	14	9.97750	25	0.02250	9.86044	12	29	
32	9.83808	13	9.97776	26	0.02224	9.86032	12	28	
33	9.83821	13	9.97801	25	0.02199	9.86020	12	27	
34	9.83834	13	9.97826	25	0.02174	9.86008	12	26	
35	9.83848	14	9.97851	25	0.02149	9.85996	12	25	
36	9.83861	13	9.97877	26	0.02123	9.85984	12	24	
37	9.83874	13	9.97902	25	0.02098	9.85972	12	23	
38	9.83887	13	9.97927	25	0.02073	9.85960	12	22	
39	9.83901	14	9.97953	26	0.02047	9.85948	12	21	
40	9.83914	13	9.97978	25	0.02022	9.85936	12	20	
41	9.83927	13	9.98003	25	0.01997	9.85924	12	19	
42	9.83940	13	9.98029	26	0.01971	9.85912	12	18	
43	9.83954	14	9.98054	25	0.01946	9.85900	12	17	
44	9.83967	13	9.98079	25	0.01921	9.85888	12	16	
45	9.83980	13	9.98104	25	0.01896	9.85876	12	15	
46	9.83993	13	9.98130	26	0.01870	9.85864	12	14	
47	9.84006	13	9.98155	25	0.01845	9.85851	13	13	
48	9.84020	14	9.98180	25	0.01820	9.85839	12	12	
49	9.84033	13	9.98206	26	0.01794	9.85827	12	11	
50	9.84046	13	9.98231	25	0.01769	9.85815	12	10	
51	9.84059	13	9.98256	25	0.01744	9.85803	12	9	
52	9.84072	13	9.98281	26	0.01719	9.85791	12	8	
53	9.84085	13	9.98307	25	0.01693	9.85779	12	7	
54	9.84098	13	9.98332	25	0.01668	9.85766	13	6	
55	9.84112	14	9.98357	25	0.01643	9.85754	12	5	
56	9.84125	13	9.98383	26	0.01617	9.85742	12	4	
57	9.84138	13	9.98408	25	0.01592	9.85730	12	3	
58	9.84151	13	9.98433	25	0.01567	9.85718	12	2	
59	9.84164	13	9.98458	25	0.01542	9.85706	12	1	
60	9.84177	13	9.98484	26	0.01516	9.85693	13	0	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.84177		9.98484		0.01516	9.85693		60	
1	9.84190	13	9.98509	25	0.01491	9.85681	12	59	
2	9.84203	13	9.98534	25	0.01466	9.85669	12	58	
3	9.84216	13	9.98560	25	0.01440	9.85657	12	57	
4	9.84229	13	9.98585	25	0.01415	9.85645	12	56	
5	9.84242	13	9.98610	25	0.01390	9.85632	12	55	
6	9.84255	13	9.98635	25	0.01365	9.85620	12	54	
7	9.84269	14	9.98661	26	0.01339	9.85608	12	53	
8	9.84282	13	9.98686	25	0.01314	9.85596	12	52	
9	9.84295	13	9.98711	25	0.01289	9.85583	13	51	
10	9.84308	13	9.98737	26	0.01263	9.85571	12	50	
11	9.84321	13	9.98762	25	0.01238	9.85559	12	49	
12	9.84334	13	9.98787	25	0.01213	9.85547	12	48	
13	9.84347	13	9.98812	25	0.01188	9.85534	12	47	
14	9.84360	13	9.98838	26	0.01162	9.85522	12	46	
15	9.84373	13	9.98863	25	0.01137	9.85510	12	45	
16	9.84385	12	9.98888	25	0.01112	9.85497	13	44	
17	9.84398	13	9.98913	25	0.01087	9.85485	12	43	
18	9.84411	13	9.98939	26	0.01061	9.85473	12	42	
19	9.84424	13	9.98964	25	0.01036	9.85460	13	41	
20	9.84437	13	9.98989	25	0.01011	9.85448	12	40	
21	9.84450	13	9.99015	26	0.00985	9.85436	12	39	
22	9.84463	13	9.99040	25	0.00960	9.85423	13	38	
23	9.84476	13	9.99065	25	0.00935	9.85411	12	37	
24	9.84489	13	9.99090	25	0.00910	9.85399	12	36	
25	9.84502	13	9.99116	26	0.00884	9.85386	13	35	
26	9.84515	13	9.99141	25	0.00859	9.85374	12	34	
27	9.84528	13	9.99166	25	0.00834	9.85361	13	33	
28	9.84540	12	9.99191	25	0.00809	9.85349	12	32	
29	9.84553	13	9.99217	26	0.00783	9.85337	12	31	
30	9.84566	13	9.99242	25	0.00758	9.85324	13	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Mia.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.84566		9.99242		0.00758	9.85324		30	
31	9.84579	13	9.99267	25	0.00733	9.85312	12	29	
32	9.84592	13	9.99293	26	0.00707	9.85299	13	28	
33	9.84605	13	9.99318	25	0.00682	9.85287	12	27	
34	9.84618	13	9.99343	25	0.00657	9.85274	13	26	
35	9.84630	12	9.99368	25	0.00632	9.85262	12	25	
36	9.84643	13	9.99394	26	0.00606	9.85250	12	24	26 25
37	9.84656	13	9.99419	25	0.00581	9.85237	13	23	1 0.4 0.4
38	9.84669	13	9.99444	25	0.00556	9.85225	12	22	2 0.9 0.8
39	9.84682	13	9.99469	25	0.00531	9.85212	12	21	3 1.3 1.3
40	9.84694	12	9.99495	26	0.00505	9.85200	13	20	4 1.7 1.7
41	9.84707	13	9.99520	25	0.00480	9.85187	12	19	5 2.2 2.1
42	9.84720	13	9.99545	25	0.00455	9.85175	12	18	6 2.6 2.5
43	9.84733	12	9.99570	26	0.00430	9.85162	13	17	7 3.0 2.9
44	9.84745	13	9.99596	25	0.00404	9.85150	12	16	8 3.5 3.3
45	9.84758	13	9.99621	25	0.00379	9.85137	13	15	9 3.9 3.8
46	9.84771	13	9.99646	26	0.00354	9.85125	12	14	10 4.3 4.2
47	9.84784	12	9.99672	25	0.00328	9.85112	13	13	20 8.7 8.3
48	9.84796	13	9.99697	25	0.00303	9.85100	12	12	30 13.0 12.5
49	9.84809	13	9.99722	25	0.00278	9.85087	13	11	40 17.3 16.7
50	9.84822	13	9.99747	26	0.00253	9.85074	12	10	50 21.7 20.8
51	9.84835	12	9.99773	25	0.00227	9.85062	13	9	
52	9.84847	13	9.99798	25	0.00202	9.85049	12	8	13 12
53	9.84860	13	9.99823	25	0.00177	9.85037	13	7	1 0.2 0.2
54	9.84873	12	9.99848	26	0.00152	9.85024	12	6	2 0.4 0.4
55	9.84885	13	9.99874	25	0.00126	9.85012	13	5	3 0.7 0.6
56	9.84898	13	9.99899	25	0.00101	9.84999	12	4	4 0.9 0.8
57	9.84911	12	9.99924	25	0.00076	9.84986	13	3	5 1.1 1.0
58	9.84923	13	9.99949	26	0.00051	9.84974	12	2	6 1.3 1.2
59	9.84936	13	9.99975	25	0.00025	9.84961	13	1	7 1.5 1.4
60	9.84949	13	0.00000	25	0.00000	9.84949	12	0	8 1.7 1.6
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mia.	PP.

	0°		1°		2°		3°		4°	
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos
0	0000	1.000	0175	9998	0349	9994	0523	9986	0698	9976
1	0003	1.000	0177	9998	0352	9994	0526	9986	0700	9975
2	0006	1.000	0180	9998	0355	9994	0529	9986	0703	9975
3	0009	1.000	0183	9998	0358	9994	0532	9986	0706	9975
4	0012	1.000	0186	9998	0361	9993	0535	9986	0709	9975
5	0015	1.000	0189	9998	0364	9993	0538	9986	0712	9975
6	0017	1.000	0192	9998	0366	9993	0541	9985	0715	9974
7	0020	1.000	0195	9998	0369	9993	0544	9985	0718	9974
8	0023	1.000	0198	9998	0372	9993	0547	9985	0721	9974
9	0026	1.000	0201	9998	0375	9993	0550	9985	0724	9974
10	0029	1.000	0204	9998	0378	9993	0552	9985	0727	9974
11	0032	1.000	0207	9998	0381	9993	0555	9985	0729	9973
12	0035	1.000	0209	9998	0384	9993	0558	9984	0732	9973
13	0038	1.000	0212	9998	0387	9993	0561	9984	0735	9973
14	0041	1.000	0215	9998	0390	9992	0564	9984	0738	9973
15	0044	1.000	0218	9998	0393	9992	0567	9984	0741	9973
16	0047	1.000	0221	9998	0396	9992	0570	9984	0744	9972
17	0049	1.000	0224	9997	0398	9992	0573	9984	0747	9972
18	0052	1.000	0227	9997	0401	9992	0576	9983	0750	9972
19	0055	1.000	0230	9997	0404	9992	0579	9983	0753	9972
20	0058	1.000	0233	9997	0407	9992	0581	9983	0756	9971
21	0061	1.000	0236	9997	0410	9992	0584	9983	0758	9971
22	0064	1.000	0239	9997	0413	9991	0587	9983	0761	9971
23	0067	1.000	0241	9997	0416	9991	0590	9983	0764	9971
24	0070	1.000	0244	9997	0419	9991	0593	9982	0767	9971
25	0073	1.000	0247	9997	0422	9991	0596	9982	0770	9970
26	0076	1.000	0250	9997	0425	9991	0599	9982	0773	9970
27	0079	1.000	0253	9997	0427	9991	0602	9982	0776	9970
28	0081	1.000	0256	9997	0430	9991	0605	9982	0779	9970
29	0084	1.000	0259	9997	0433	9991	0608	9982	0782	9969
30	0087	1.000	0262	9997	0436	9990	0610	9981	0785	9969
31	0090	1.000	0265	9996	0439	9990	0613	9981	0787	9968
32	0093	1.000	0268	9996	0442	9990	0616	9981	0790	9968
33	0096	1.000	0270	9996	0445	9990	0619	9981	0793	9968
34	0099	1.000	0273	9996	0448	9990	0622	9981	0796	9968
35	0102	9999	0276	9996	0451	9990	0625	9980	0799	9968
36	0105	9999	0279	9996	0454	9990	0628	9980	0802	9968
37	0108	9999	0282	9996	0457	9990	0631	9980	0805	9968
38	0111	9999	0285	9996	0459	9989	0634	9980	0808	9967
39	0113	9999	0288	9996	0462	9989	0637	9980	0811	9967
40	0116	9999	0291	9996	0465	9989	0640	9980	0814	9967
41	0119	9999	0294	9996	0468	9989	0642	9979	0816	9967
42	0122	9999	0297	9996	0471	9989	0645	9979	0819	9967
43	0125	9999	0300	9996	0474	9989	0648	9979	0822	9967
44	0128	9999	0302	9995	0477	9989	0651	9979	0825	9967
45	0131	9999	0305	9995	0480	9988	0654	9979	0828	9967
46	0134	9999	0308	9995	0483	9988	0657	9978	0831	9967
47	0137	9999	0311	9995	0486	9988	0660	9978	0834	9967
48	0140	9999	0314	9995	0488	9988	0663	9978	0837	9967
49	0143	9999	0317	9995	0491	9988	0666	9978	0840	9967
50	0145	9999	0320	9995	0494	9988	0669	9978	0843	9966
51	0148	9999	0323	9995	0497	9988	0671	9977	0845	9966
52	0151	9999	0326	9995	0500	9987	0674	9977	0848	9966
53	0154	9999	0329	9995	0503	9987	0677	9977	0851	9966
54	0157	9999	0332	9995	0506	9987	0680	9977	0854	9966
55	0160	9999	0334	9994	0509	9987	0683	9977	0857	9966
56	0163	9999	0337	9994	0512	9987	0686	9976	0860	9966
57	0166	9999	0340	9994	0515	9987	0689	9976	0863	9966
58	0169	9999	0343	9994	0518	9987	0692	9976	0866	9966
59	0172	9999	0346	9994	0520	9986	0695	9976	0869	9966
60	0175	9999	0349	9994	0523	9986	0698	9976	0872	9966
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin
	89°		88°		87°		86°		85°	

## NATURAL SINES AND COSINES

121

	5°		6°		7°		8°		9°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	0872	9962	1045	9945	1219	9925	1392	9903	1564	9877	60
1	0874	9962	1048	9945	1222	9925	1395	9902	1567	9876	59
2	0877	9961	1051	9945	1224	9925	1397	9902	1570	9876	58
3	0880	9961	1054	9944	1227	9924	1400	9901	1573	9876	57
4	0883	9961	1057	9944	1230	9924	1403	9901	1576	9875	56
5	0886	9961	1060	9944	1233	9924	1406	9901	1579	9875	55
6	0889	9960	1063	9943	1236	9923	1409	9900	1582	9874	54
7	0892	9960	1066	9943	1239	9923	1412	9900	1584	9874	53
8	0895	9960	1068	9943	1242	9923	1415	9899	1587	9873	52
9	0898	9960	1071	9942	1245	9922	1418	9899	1590	9873	51
10	0901	9959	1074	9942	1248	9922	1421	9899	1593	9872	50
11	0903	9959	1077	9942	1250	9922	1423	9898	1596	9872	49
12	0906	9959	1080	9942	1253	9921	1426	9898	1599	9871	48
13	0909	9959	1083	9941	1256	9921	1429	9897	1602	9871	47
14	0912	9958	1086	9941	1259	9920	1432	9897	1605	9870	46
15	0915	9958	1089	9941	1262	9920	1435	9897	1607	9870	45
16	0918	9958	1092	9940	1265	9920	1438	9896	1610	9869	44
17	0921	9958	1094	9940	1268	9919	1441	9896	1613	9869	43
18	0924	9957	1097	9940	1271	9919	1444	9895	1616	9869	42
19	0927	9957	1100	9939	1274	9919	1446	9895	1619	9868	41
20	0929	9957	1103	9939	1276	9918	1449	9894	1622	9868	40
21	0932	9956	1106	9939	1279	9918	1452	9894	1625	9867	39
22	0935	9956	1109	9938	1282	9917	1455	9894	1628	9867	38
23	0938	9956	1112	9938	1285	9917	1458	9893	1630	9866	37
24	0941	9956	1115	9938	1288	9917	1461	9893	1633	9866	36
25	0944	9955	1118	9937	1291	9916	1464	9892	1636	9865	35
26	0947	9955	1120	9937	1294	9916	1467	9892	1639	9865	34
27	0950	9955	1123	9937	1297	9916	1469	9891	1642	9864	33
28	0953	9955	1126	9936	1299	9915	1472	9891	1645	9864	32
29	0956	9954	1129	9936	1302	9915	1475	9891	1648	9863	31
30	0958	9954	1132	9936	1305	9914	1478	9890	1650	9863	30
31	0961	9954	1135	9935	1308	9914	1481	9890	1653	9862	29
32	0964	9953	1138	9935	1311	9914	1484	9889	1656	9862	28
33	0967	9953	1141	9935	1314	9913	1487	9889	1659	9861	27
34	0970	9953	1144	9934	1317	9913	1490	9888	1662	9861	26
35	0973	9953	1146	9934	1320	9913	1492	9888	1665	9860	25
36	0976	9952	1149	9934	1323	9912	1495	9888	1668	9860	24
37	0979	9952	1152	9933	1325	9912	1498	9887	1671	9859	23
38	0982	9952	1155	9933	1328	9911	1501	9887	1673	9859	22
39	0985	9951	1158	9933	1331	9911	1504	9886	1676	9859	21
40	0987	9951	1161	9932	1334	9911	1507	9886	1679	9858	20
41	0990	9951	1164	9932	1337	9910	1510	9885	1682	9858	19
42	0993	9951	1167	9932	1340	9910	1513	9885	1685	9857	18
43	0996	9950	1170	9931	1343	9909	1515	9884	1688	9857	17
44	0999	9950	1172	9931	1346	9909	1518	9884	1691	9856	16
45	1002	9950	1175	9931	1349	9909	1521	9884	1693	9856	15
46	1005	9949	1178	9930	1351	9908	1524	9883	1696	9855	14
47	1008	9949	1181	9930	1354	9908	1527	9883	1699	9855	13
48	1011	9949	1184	9930	1357	9907	1530	9882	1702	9854	12
49	1013	9949	1187	9929	1360	9907	1533	9882	1705	9854	11
50	1016	9948	1190	9929	1363	9907	1536	9881	1708	9853	10
51	1019	9948	1193	9929	1366	9906	1538	9881	1711	9853	9
52	1022	9948	1196	9928	1369	9906	1541	9880	1714	9852	8
53	1025	9947	1198	9928	1372	9905	1544	9880	1716	9852	7
54	1028	9947	1201	9928	1374	9905	1547	9880	1719	9851	6
55	1031	9947	1204	9927	1377	9905	1550	9879	1722	9851	5
56	1034	9946	1207	9927	1380	9904	1553	9879	1725	9850	4
57	1037	9946	1210	9927	1383	9904	1556	9878	1728	9850	3
58	1039	9946	1213	9926	1386	9903	1559	9878	1731	9849	2
59	1042	9946	1216	9926	1389	9903	1561	9877	1734	9849	1
60	1045	9945	1219	9925	1392	9903	1564	9877	1736	9848	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	84°		83°		82°		81°		80°		

	10°		11°		12°		13°		14°
	sin	cos	sin	cos	sin	cos	sin	cos	sin
0	1736	9848	1908	9816	2079	9781	2250	9744	2419
1	1739	9848	1911	9816	2082	9781	2252	9743	2422
2	1742	9847	1914	9815	2085	9780	2255	9742	2425
3	1745	9847	1917	9815	2088	9780	2258	9742	2428
4	1748	9846	1920	9814	2090	9779	2261	9741	2431
5	1751	9846	1922	9813	2093	9778	2264	9740	2433
6	1754	9845	1925	9813	2096	9778	2267	9740	2436
7	1757	9845	1928	9812	2099	9777	2269	9739	2439
8	1759	9844	1931	9812	2102	9777	2272	9738	2442
9	1762	9843	1934	9811	2105	9776	2275	9738	2445
10	1765	9843	1937	9811	2108	9775	2278	9737	2447
11	1768	9842	1939	9810	2110	9775	2281	9736	2450
12	1771	9842	1942	9810	2113	9774	2284	9736	2453
13	1774	9841	1945	9809	2116	9774	2286	9735	2456
14	1777	9841	1948	9808	2119	9773	2289	9734	2459
15	1779	9840	1951	9808	2122	9772	2292	9734	2462
16	1782	9840	1954	9807	2125	9772	2295	9733	2464
17	1785	9839	1957	9807	2127	9771	2298	9732	2467
18	1788	9839	1959	9806	2130	9770	2300	9732	2470
19	1791	9838	1962	9806	2133	9770	2303	9731	2473
20	1794	9838	1965	9805	2136	9769	2306	9730	2476
21	1797	9837	1968	9804	2139	9769	2309	9730	2478
22	1799	9837	1971	9804	2142	9768	2312	9729	2481
23	1802	9836	1974	9803	2145	9767	2315	9728	2484
24	1805	9836	1977	9803	2147	9767	2317	9728	2487
25	1808	9835	1979	9802	2150	9766	2320	9727	2490
26	1811	9835	1982	9802	2153	9765	2323	9726	2493
27	1814	9834	1985	9801	2156	9765	2326	9726	2495
28	1817	9834	1988	9800	2159	9764	2329	9725	2498
29	1819	9833	1991	9800	2162	9764	2332	9724	2501
30	1822	9833	1994	9799	2164	9763	2334	9724	2504
31	1825	9832	1997	9799	2167	9762	2337	9723	2507
32	1828	9831	1999	9798	2170	9762	2340	9722	2509
33	1831	9831	2002	9798	2173	9761	2343	9722	2512
34	1834	9830	2005	9797	2176	9760	2346	9721	2515
35	1837	9830	2008	9796	2179	9760	2349	9720	2518
36	1840	9829	2011	9796	2181	9759	2351	9720	2521
37	1842	9829	2014	9795	2184	9759	2354	9719	2524
38	1845	9828	2016	9795	2187	9758	2357	9718	2526
39	1848	9828	2019	9794	2190	9757	2360	9718	2529
40	1851	9827	2022	9793	2193	9757	2363	9717	2532
41	1854	9827	2025	9793	2196	9756	2366	9716	2535
42	1857	9826	2028	9792	2198	9755	2368	9715	2538
43	1860	9826	2031	9792	2201	9755	2371	9715	2540
44	1862	9825	2034	9791	2204	9754	2374	9714	2543
45	1865	9825	2036	9790	2207	9753	2377	9713	2546
46	1868	9824	2039	9790	2210	9753	2380	9713	2549
47	1871	9823	2042	9789	2213	9752	2383	9712	2552
48	1874	9823	2045	9789	2215	9751	2385	9711	2554
49	1877	9822	2048	9788	2218	9751	2388	9711	2557
50	1880	9822	2051	9787	2221	9750	2391	9710	2560
51	1882	9821	2054	9787	2224	9750	2394	9709	2563
52	1885	9821	2056	9786	2227	9749	2397	9709	2566
53	1888	9820	2059	9786	2230	9748	2399	9708	2569
54	1891	9820	2062	9785	2233	9748	2402	9707	2572
55	1894	9819	2065	9784	2235	9747	2405	9706	2575
56	1897	9818	2068	9784	2238	9746	2408	9706	2578
57	1900	9818	2071	9783	2241	9746	2411	9705	2581
58	1902	9817	2073	9783	2244	9745	2414	9704	2584
59	1905	9817	2076	9782	2247	9744	2416	9704	2587
60	1908	9816	2079	9781	2250	9744	2419	9703	2590
	cos	sin	cos	sin	cos	sin	cos	sin	
	79°		78°		77°		76°		

	15°		16°		17°		18°		19°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	2588	9659	2756	9613	2924	9563	3090	9511	3256	9455	60
1	2591	9659	2759	9612	2926	9562	3093	9510	3258	9454	59
2	2594	9658	2762	9611	2929	9561	3096	9509	3261	9453	58
3	2597	9657	2765	9610	2932	9560	3098	9508	3264	9452	57
4	2599	9656	2768	9609	2935	9560	3101	9507	3267	9451	56
5	2602	9656	2770	9609	2938	9560	3104	9506	3269	9450	55
6	2605	9655	2773	9608	2940	9558	3107	9505	3272	9449	54
7	2608	9654	2776	9607	2943	9557	3110	9504	3275	9449	53
8	2611	9653	2779	9606	2946	9556	3112	9503	3278	9448	52
9	2613	9652	2782	9605	2949	9555	3115	9502	3280	9447	51
10	2616	9652	2784	9605	2952	9555	3118	9502	3283	9446	50
11	2619	9651	2787	9604	2954	9554	3121	9501	3286	9445	49
12	2622	9650	2790	9603	2957	9553	3123	9500	3289	9444	48
13	2625	9649	2793	9602	2960	9552	3126	9499	3291	9443	47
14	2628	9649	2795	9601	2963	9551	3129	9498	3294	9442	46
15	2630	9648	2798	9600	2965	9550	3132	9497	3297	9441	45
16	2633	9647	2801	9600	2968	9549	3134	9496	3300	9440	44
17	2636	9646	2804	9599	2971	9548	3137	9495	3302	9439	43
18	2639	9646	2807	9598	2974	9548	3140	9494	3305	9438	42
19	2642	9645	2809	9597	2977	9547	3143	9493	3308	9437	41
20	2644	9644	2812	9596	2979	9546	3145	9492	3311	9436	40
21	2647	9643	2815	9596	2982	9545	3148	9492	3313	9435	39
22	2650	9642	2818	9595	2985	9544	3151	9491	3316	9434	38
23	2653	9642	2821	9594	2988	9543	3154	9490	3319	9433	37
24	2656	9641	2823	9593	2990	9542	3156	9489	3322	9432	36
25	2658	9640	2826	9592	2993	9542	3159	9488	3324	9431	35
26	2661	9639	2829	9591	2996	9541	3162	9487	3327	9430	34
27	2664	9639	2832	9591	2999	9540	3165	9486	3330	9429	33
28	2667	9638	2835	9590	3002	9539	3168	9485	3333	9428	32
29	2670	9637	2837	9589	3004	9538	3170	9484	3335	9427	31
30	2672	9636	2840	9588	3007	9537	3173	9483	3338	9426	30
31	2675	9636	2843	9587	3010	9536	3176	9482	3341	9425	29
32	2678	9635	2846	9587	3013	9535	3179	9481	3344	9424	28
33	2681	9634	2849	9586	3015	9535	3181	9480	3346	9423	27
34	2684	9633	2851	9585	3018	9534	3184	9480	3349	9423	26
35	2686	9632	2854	9584	3021	9533	3187	9479	3352	9422	25
36	2689	9632	2857	9583	3024	9532	3190	9478	3355	9421	24
37	2692	9631	2860	9582	3026	9531	3192	9477	3357	9420	23
38	2695	9630	2862	9582	3029	9530	3195	9476	3360	9419	22
39	2698	9629	2865	9581	3032	9529	3198	9475	3363	9418	21
40	2700	9628	2868	9580	3035	9528	3201	9474	3365	9417	20
41	2703	9628	2871	9579	3038	9527	3203	9473	3368	9416	19
42	2706	9627	2874	9578	3040	9527	3206	9472	3371	9415	18
43	2709	9626	2876	9577	3043	9526	3209	9471	3374	9414	17
44	2712	9625	2879	9577	3046	9525	3212	9470	3376	9413	16
45	2714	9625	2882	9576	3049	9524	3214	9469	3379	9412	15
46	2717	9624	2885	9575	3051	9523	3217	9468	3382	9411	14
47	2720	9623	2888	9574	3054	9522	3220	9467	3385	9410	13
48	2723	9622	2890	9573	3057	9521	3223	9466	3387	9409	12
49	2726	9621	2893	9572	3060	9520	3225	9466	3390	9408	11
50	2728	9621	2896	9572	3062	9520	3228	9465	3393	9407	10
51	2731	9620	2899	9571	3065	9519	3231	9464	3396	9406	9
52	2734	9619	2901	9570	3068	9518	3234	9463	3398	9405	8
53	2737	9618	2904	9569	3071	9517	3236	9462	3401	9404	7
54	2740	9617	2907	9568	3074	9516	3239	9461	3404	9403	6
55	2742	9617	2910	9567	3076	9515	3242	9460	3407	9402	5
56	2745	9616	2913	9566	3079	9514	3245	9459	3409	9401	4
57	2748	9615	2915	9566	3082	9513	3247	9458	3412	9400	3
58	2751	9614	2918	9565	3085	9512	3250	9457	3415	9399	2
59	2754	9613	2921	9564	3087	9511	3253	9456	3417	9398	1
60	2756	9613	2924	9563	3090	9511	3255	9455	3420	9397	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	74°		73°		72°		71°		70°		



No.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.82551	14	9.95444	25	0.04556	9.87107	11	60	
1	9.82565	14	9.95469	26	0.04531	9.87096	11	59	
2	9.82579	14	9.95495	25	0.04505	9.87085	12	58	26 25
3	9.82593	14	9.95520	25	0.04480	9.87073	11	57	1 0.4 0.4
4	9.82607	14	9.95545	25	0.04455	9.87062	11	56	2 0.9 0.8
		14		26			12		3 1.3 1.3
5	9.82621	14	9.95571	25	0.04429	9.87050	11	55	4 1.7 1.7
		14		26			12		5 2.2 2.1
6	9.82635	14	9.95596	25	0.04404	9.87039	11	54	6 2.6 2.5
7	9.82649	14	9.95622	26	0.04378	9.87028	11	53	7 3.0 2.9
8	9.82663	14	9.95647	25	0.04353	9.87016	12	52	8 3.5 3.3
9	9.82677	14	9.95672	25	0.04328	9.87005	11	51	9 3.9 3.8
		14		26			12		10 4.3 4.2
10	9.82691	14	9.95698	25	0.04302	9.86993	11	50	20 8.7 8.3
		14		26			12		30 13.0 12.5
11	9.82705	14	9.95723	25	0.04277	9.86982	11	49	40 17.3 16.7
12	9.82719	14	9.95748	25	0.04252	9.86970	12	48	50 21.7 20.8
13	9.82733	14	9.95774	26	0.04226	9.86959	11	47	
14	9.82747	14	9.95799	25	0.04201	9.86947	12	46	14 13
		14		26			11		1 0.2 0.2
15	9.82761	14	9.95825	25	0.04175	9.86936	12	45	2 0.5 0.4
		14		26			11		3 0.7 0.7
16	9.82775	13	9.95850	25	0.04150	9.86924	12	44	4 0.9 0.9
17	9.82788	14	9.95875	26	0.04125	9.86913	11	43	5 1.2 1.1
18	9.82802	14	9.95901	25	0.04099	9.86902	12	42	6 1.4 1.3
19	9.82816	14	9.95926	26	0.04074	9.86890	11	41	7 1.6 1.5
		14		25			12		8 1.9 1.7
20	9.82830	14	9.95952	25	0.04048	9.86879	12	40	9 2.1 2.0
		14		26			11		10 2.3 2.2
21	9.82844	14	9.95977	25	0.04023	9.86867	12	39	20 4.7 4.3
22	9.82858	14	9.96002	26	0.03998	9.86855	11	38	30 7.0 6.5
23	9.82872	13	9.96028	25	0.03972	9.86844	12	37	40 9.3 8.7
24	9.82885	14	9.96053	25	0.03947	9.86832	11	36	50 11.7 10.8
		14		26			12		
25	9.82899	14	9.96078	25	0.03922	9.86821	12	35	11 12
		14		26			11		1 0.2 0.2
26	9.82913	14	9.96104	25	0.03896	9.86809	12	34	2 0.4 0.4
27	9.82927	14	9.96129	26	0.03871	9.86798	11	33	3 0.6 0.6
28	9.82941	14	9.96155	25	0.03845	9.86786	12	32	4 0.7 0.8
29	9.82955	13	9.96180	25	0.03820	9.86775	11	31	5 0.9 1.0
		14		26			12		6 1.1 1.2
30	9.82968	13	9.96205	25	0.03795	9.86763	12	30	7 1.3 1.4
		14		26			11		8 1.5 1.6
		14		25			12		9 1.7 1.8
		14		26			11		10 1.8 2.0
		14		25			12		20 3.7 4.0
		14		26			11		30 5.5 6.0
		14		25			12		40 7.3 8.0
		14		26			11		50 9.2 10.0
		14		25			12		
	Cosine	d	Cotang.	d	Tang.	Sine	d	No.	PP.

42°

115

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.82968		9.96205		0.03795	9.86763		30	
31	9.82982	14	9.96231	26	0.03769	9.86752	11	29	
32	9.82996	14	9.96256	25	0.03744	9.86740	12	28	
33	9.83010	14	9.96281	25	0.03719	9.86728	11	27	26 25
34	9.83023	13	9.96307	26	0.03693	9.86717	12	26	1 0.4 0.4
35	9.83037	14	9.96332	25	0.03668	9.86705	11	25	2 0.9 0.8
36	9.83051	14	9.96357	26	0.03643	9.86694	12	24	3 1.3 1.3
37	9.83065	13	9.96383	25	0.03617	9.86682	11	23	4 1.7 1.7
38	9.83078	14	9.96408	25	0.03592	9.86670	12	22	5 2.2 2.1
39	9.83092	14	9.96433	26	0.03567	9.86659	11	21	6 2.6 2.5
40	9.83106	14	9.96459	25	0.03541	9.86647	12	20	7 3.0 2.9
41	9.83120	13	9.96484	26	0.03516	9.86635	11	19	8 3.5 3.3
42	9.83133	14	9.96510	25	0.03490	9.86624	12	18	9 3.9 3.8
43	9.83147	14	9.96535	25	0.03465	9.86612	11	17	10 4.3 4.2
44	9.83161	13	9.96560	26	0.03440	9.86600	12	16	20 8.7 8.3
45	9.83174	14	9.96586	25	0.03414	9.86589	11	15	30 13.0 12.5
46	9.83188	14	9.96611	25	0.03389	9.86577	12	14	40 17.3 16.7
47	9.83202	13	9.96636	26	0.03364	9.86565	11	13	50 21.7 20.8
48	9.83215	14	9.96662	25	0.03338	9.86554	12	12	
49	9.83229	13	9.96687	25	0.03313	9.86542	11	11	
50	9.83242	14	9.96712	26	0.03288	9.86530	12	10	
51	9.83256	14	9.96738	25	0.03262	9.86518	11	9	11 12
52	9.83270	13	9.96763	25	0.03237	9.86507	12	8	1 0.2 0.2
53	9.83283	14	9.96788	26	0.03212	9.86495	11	7	2 0.4 0.4
54	9.83297	13	9.96814	25	0.03186	9.86483	12	6	3 0.6 0.6
55	9.83310	14	9.96839	25	0.03161	9.86472	11	5	4 0.7 0.8
56	9.83324	14	9.96864	26	0.03136	9.86460	12	4	5 0.9 1.0
57	9.83338	13	9.96890	25	0.03110	9.86448	11	3	6 1.1 1.2
58	9.83351	14	9.96915	25	0.03085	9.86436	12	2	7 1.3 1.4
59	9.83365	13	9.96940	26	0.03060	9.86425	11	1	8 1.5 1.6
60	9.83378	14	9.96966	25	0.03034	9.86413	12	0	9 1.7 1.8
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

47°

Min.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
0	9.83378		9.96966		0.03034	9.86413		60	
1	9.83392	14	9.96991	25	0.03009	9.86401	12	59	
2	9.83405	13	9.97016	25	0.02984	9.86389	12	58	
3	9.83419	14	9.97042	26	0.02958	9.86377	12	57	26 25
4	9.83432	13	9.97067	25	0.02933	9.86366	11	56	1 0.4 0.4
									2 0.9 0.8
									3 1.3 1.3
									4 1.7 1.7
5	9.83446	14	9.97092	25	0.02908	9.86354	12	55	5 2.2 2.1
									6 2.6 2.5
6	9.83459	13	9.97118	26	0.02882	9.86342	12	54	7 3.0 2.9
7	9.83473	14	9.97143	25	0.02857	9.86330	12	53	8 3.5 3.3
8	9.83486	13	9.97168	25	0.02832	9.86318	12	52	9 3.9 3.8
9	9.83500	14	9.97193	25	0.02807	9.86306	12	51	10 4.3 4.2
									20 8.7 8.3
									30 13.0 12.5
									40 17.3 16.7
									50 21.7 20.8
10	9.83513	13	9.97219	26	0.02781	9.86295	11	50	
11	9.83527	14	9.97244	25	0.02756	9.86283	12	49	
12	9.83540	13	9.97269	25	0.02731	9.86271	12	48	14 13
13	9.83554	14	9.97295	26	0.02705	9.86259	12	47	1 0.2 0.2
14	9.83567	13	9.97320	25	0.02680	9.86247	12	46	2 0.5 0.4
									3 0.7 0.7
									4 0.9 0.9
									5 1.2 1.1
15	9.83581	14	9.97345	25	0.02655	9.86235	12	45	6 1.4 1.3
									7 1.6 1.5
16	9.83594	13	9.97371	26	0.02629	9.86223	12	44	8 1.9 1.7
17	9.83608	14	9.97396	25	0.02604	9.86211	12	43	9 2.1 2.0
18	9.83621	13	9.97421	25	0.02579	9.86200	11	42	10 2.3 2.2
19	9.83634	13	9.97447	26	0.02553	9.86188	12	41	20 4.7 4.3
									30 7.0 6.5
									40 9.3 8.7
									50 11.7 10.8
20	9.83648	14	9.97472	25	0.02528	9.86176	12	40	
21	9.83661	13	9.97497	25	0.02503	9.86164	12	39	11 12
22	9.83674	13	9.97523	26	0.02477	9.86152	12	38	1 0.2 0.2
23	9.83688	14	9.97548	25	0.02452	9.86140	12	37	2 0.4 0.4
24	9.83701	13	9.97573	25	0.02427	9.86128	12	36	3 0.6 0.6
									4 0.7 0.8
									5 0.9 1.0
									6 1.1 1.2
25	9.83715	14	9.97598	25	0.02402	9.86116	12	35	7 1.3 1.4
									8 1.5 1.6
									9 1.7 1.8
26	9.83728	13	9.97624	26	0.02376	9.86104	12	34	10 1.8 2.0
27	9.83741	13	9.97649	25	0.02351	9.86092	12	33	20 3.7 4.0
28	9.83755	14	9.97674	25	0.02326	9.86080	12	32	30 5.5 6.0
29	9.83768	13	9.97700	26	0.02300	9.86068	12	31	40 7.3 8.0
									50 9.2 10.0
30	9.83781	13	9.97725	25	0.02275	9.86056	12	30	
	Cosine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

Mis.	Sine	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
30	9.83781		9.97725		0.02275	9.86056		30	
31	9.83795	14	9.97750	25	0.02250	9.86044	12	29	
32	9.83808	13	9.97776	26	0.02224	9.86032	12	28	
33	9.83821	13	9.97801	25	0.02199	9.86020	12	27	26 25
34	9.83834	13	9.97826	25	0.02174	9.86008	12	26	1 0.4 0.4
35	9.83848		9.97851		0.02149	9.85996		25	2 0.9 0.8
36	9.83861	14	9.97877	23	0.02123	9.85984	12	24	3 1.3 1.3
37	9.83874	13	9.97902	25	0.02098	9.85972	12	23	4 1.7 1.7
38	9.83887	13	9.97927	25	0.02073	9.85960	12	22	5 2.2 2.1
39	9.83901	14	9.97953	26	0.02047	9.85948	12	21	6 2.6 2.5
40	9.83914	13	9.97978	25	0.02022	9.85936	12	20	7 3.0 2.9
41	9.83927	13	9.98003	26	0.01997	9.85924	12	19	8 3.5 3.3
42	9.83940	14	9.98029	25	0.01971	9.85912	12	18	9 3.9 3.8
43	9.83954	13	9.98054	25	0.01946	9.85900	12	17	10 4.3 4.2
44	9.83967	13	9.98079	25	0.01921	9.85888	12	16	20 8.7 8.3
45	9.83980		9.98104		0.01896	9.85876		15	30 13.0 12.5
46	9.83993	13	9.98130	26	0.01870	9.85864	12	14	40 17.3 16.7
47	9.84006	13	9.98155	25	0.01845	9.85851	13	13	50 21.7 20.8
48	9.84020	14	9.98180	26	0.01820	9.85839	12	12	
49	9.84033	13	9.98206	25	0.01794	9.85827	12	11	
50	9.84046		9.98231		0.01769	9.85815		10	
51	9.84059	13	9.98256	25	0.01744	9.85803	12	9	
52	9.84072	13	9.98281	26	0.01719	9.85791	12	8	12
53	9.84085	13	9.98307	25	0.01693	9.85779	13	7	1 0.2 0.2
54	9.84098	14	9.98332	25	0.01668	9.85766	12	6	2 0.5 0.4
55	9.84112		9.98357		0.01643	9.85754		5	3 0.7 0.7
56	9.84125	13	9.98383	26	0.01617	9.85742	12	4	4 0.9 0.9
57	9.84138	13	9.98408	25	0.01592	9.85730	12	3	5 1.2 1.1
58	9.84151	13	9.98433	25	0.01567	9.85718	12	2	6 1.4 1.3
59	9.84164	13	9.98458	25	0.01542	9.85706	12	1	7 1.6 1.5
60	9.84177		9.98484		0.01516	9.85693		0	8 1.9 1.7
	Cosine	d	Cotang.	d	Tang.	Sine	d	Mis.	PP.



Line	d	Tang.	d	Cotang.	Cosine	d	↑	PP. Seconds
1566	13	9.99242	25	0.00758	9.85324	12	30	
1579	13	9.99267	26	0.00733	9.85312	13	29	
1592	13	9.99293	25	0.00707	9.85299	12	28	
1605	13	9.99318	25	0.00682	9.85287	13	27	
1618	13	9.99343	25	0.00657	9.85274	13	26	
1630	12	9.99368	25	0.00632	9.85262	12	25	
1643	13	9.99394	26	0.00606	9.85250	13	24	26 25
1656	13	9.99419	25	0.00581	9.85237	12	23	1 0.4 0.4
1669	13	9.99444	25	0.00556	9.85225	12	22	2 0.9 0.8
1682	13	9.99469	25	0.00531	9.85212	13	21	3 1.3 1.3
1694	12	9.99495	26	0.00505	9.85200	12	20	4 1.7 1.7
1707	13	9.99520	25	0.00480	9.85187	13	19	5 2.2 2.1
1720	13	9.99545	25	0.00455	9.85175	12	18	6 2.6 2.5
1733	13	9.99570	25	0.00430	9.85162	13	17	7 3.0 2.9
1745	12	9.99596	26	0.00404	9.85150	12	16	8 3.5 3.3
1758	13	9.99621	25	0.00379	9.85137	13	15	9 3.9 3.8
1771	13	9.99646	26	0.00354	9.85125	12	14	10 4.3 4.2
1784	12	9.99672	25	0.00328	9.85112	13	13	20 8.7 8.3
1796	13	9.99697	25	0.00303	9.85100	12	12	30 13.0 12.5
1809	13	9.99722	25	0.00278	9.85087	13	11	40 17.3 16.7
1822	13	9.99747	26	0.00253	9.85074	12	10	50 21.7 20.8
1835	12	9.99773	25	0.00227	9.85062	13	9	
1847	13	9.99798	25	0.00202	9.85049	12	8	13 12
1860	13	9.99823	25	0.00177	9.85037	13	7	1 0.2 0.2
1873	12	9.99848	26	0.00152	9.85024	12	6	2 0.4 0.4
1885	13	9.99874	25	0.00126	9.85012	13	5	3 0.7 0.6
1898	13	9.99899	25	0.00101	9.84999	12	4	4 0.9 0.8
1911	12	9.99924	26	0.00076	9.84986	13	3	5 1.1 1.0
1923	13	9.99949	25	0.00051	9.84974	12	2	6 1.3 1.2
1936	13	9.99975	26	0.00025	9.84961	13	1	7 1.5 1.4
1949	13	0.00000	25	0.00000	9.84949	12	0	8 1.7 1.6
								9 2.0 1.8
								10 2.2 2.0
								20 4.3 4.0
								30 6.5 6.0
								40 8.7 8.0
								50 10.8 10.0
sine	d	Cotang.	d	Tang.	Sine	d	Min.	PP.

	0°		1°		2°		3°		4°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	0000	1.000	0175	9998	0349	9994	0523	9988	0698	9976	60
1	0003	1.000	0177	9998	0352	9994	0526	9988	0700	9975	59
2	0006	1.000	0180	9998	0355	9994	0529	9988	0703	9975	58
3	0009	1.000	0183	9998	0358	9994	0532	9988	0706	9975	57
4	0012	1.000	0186	9998	0361	9993	0535	9988	0709	9975	56
5	0015	1.000	0189	9998	0364	9993	0538	9988	0712	9975	55
6	0017	1.000	0192	9998	0366	9993	0541	9988	0715	9974	54
7	0020	1.000	0195	9998	0369	9993	0544	9988	0718	9974	53
8	0023	1.000	0198	9998	0372	9993	0547	9988	0721	9974	52
9	0026	1.000	0201	9998	0375	9993	0550	9988	0724	9974	51
10	0029	1.000	0204	9998	0378	9993	0552	9988	0727	9974	50
11	0032	1.000	0207	9998	0381	9993	0555	9988	0729	9973	49
12	0035	1.000	0209	9998	0384	9993	0558	9988	0732	9973	48
13	0038	1.000	0212	9998	0387	9993	0561	9988	0735	9973	47
14	0041	1.000	0215	9998	0390	9992	0564	9988	0738	9973	46
15	0044	1.000	0218	9998	0393	9992	0567	9988	0741	9973	45
16	0047	1.000	0221	9998	0396	9992	0570	9988	0744	9972	44
17	0049	1.000	0224	9997	0398	9992	0573	9988	0747	9972	43
18	0052	1.000	0227	9997	0401	9992	0576	9988	0750	9972	42
19	0055	1.000	0230	9997	0404	9992	0579	9988	0753	9972	41
20	0058	1.000	0233	9997	0407	9992	0581	9988	0756	9971	40
21	0061	1.000	0236	9997	0410	9992	0584	9988	0758	9971	39
22	0064	1.000	0239	9997	0413	9991	0587	9988	0761	9971	38
23	0067	1.000	0241	9997	0416	9991	0590	9988	0764	9971	37
24	0070	1.000	0244	9997	0419	9991	0593	9988	0767	9971	36
25	0073	1.000	0247	9997	0422	9991	0596	9988	0770	9970	35
26	0076	1.000	0250	9997	0425	9991	0599	9988	0773	9970	34
27	0079	1.000	0253	9997	0427	9991	0602	9988	0776	9970	33
28	0081	1.000	0256	9997	0430	9991	0605	9988	0779	9970	32
29	0084	1.000	0259	9997	0433	9991	0608	9988	0782	9969	31
30	0087	1.000	0262	9997	0436	9990	0610	9988	0785	9969	30
31	0090	1.000	0265	9996	0439	9990	0613	9988	0787	9969	29
32	0093	1.000	0268	9996	0442	9990	0616	9988	0790	9969	28
33	0096	1.000	0270	9996	0445	9990	0619	9988	0793	9968	27
34	0099	1.000	0273	9996	0448	9990	0622	9988	0796	9968	26
35	0102	9999	0276	9996	0451	9990	0625	9988	0799	9968	25
36	0105	9999	0279	9996	0454	9990	0628	9988	0802	9968	24
37	0108	9999	0282	9996	0457	9990	0631	9988	0805	9968	23
38	0111	9999	0285	9996	0459	9989	0634	9988	0808	9967	22
39	0113	9999	0288	9996	0462	9989	0637	9988	0811	9967	21
40	0116	9999	0291	9996	0465	9989	0640	9988	0814	9967	20
41	0119	9999	0294	9996	0468	9989	0642	9979	0816	9967	19
42	0122	9999	0297	9996	0471	9989	0645	9979	0819	9966	18
43	0125	9999	0300	9996	0474	9989	0648	9979	0822	9966	17
44	0128	9999	0302	9995	0477	9989	0651	9979	0825	9966	16
45	0131	9999	0305	9995	0480	9988	0654	9979	0828	9966	15
46	0134	9999	0308	9995	0483	9988	0657	9978	0831	9965	14
47	0137	9999	0311	9995	0486	9988	0660	9978	0834	9965	13
48	0140	9999	0314	9995	0488	9988	0663	9978	0837	9965	12
49	0143	9999	0317	9995	0491	9988	0666	9978	0840	9965	11
50	0145	9999	0320	9995	0494	9988	0669	9978	0843	9964	10
51	0148	9999	0323	9995	0497	9988	0671	9977	0845	9964	9
52	0151	9999	0326	9995	0500	9987	0674	9977	0848	9964	8
53	0154	9999	0329	9995	0503	9987	0677	9977	0851	9964	7
54	0157	9999	0332	9995	0506	9987	0680	9977	0854	9963	6
55	0160	9999	0334	9994	0509	9987	0683	9977	0857	9963	5
56	0163	9999	0337	9994	0512	9987	0686	9976	0860	9963	4
57	0166	9999	0340	9994	0515	9987	0689	9976	0863	9963	3
58	0169	9999	0343	9994	0518	9987	0692	9976	0866	9963	2
59	0172	9999	0346	9994	0520	9986	0695	9976	0869	9963	1
60	0175	9999	0349	9994	0523	9986	0698	9976	0872	9963	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	89°		88°		87°		86°		85°		

	5°		6°		7°		8°		9°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	0873	9963	1045	9945	1219	9925	1392	9903	1564	9877	60
1	0874	9962	1048	9945	1222	9925	1395	9902	1567	9876	59
2	0877	9961	1051	9945	1224	9925	1397	9902	1570	9876	58
3	0880	9961	1054	9944	1227	9924	1400	9901	1573	9876	57
4	0883	9961	1057	9944	1230	9924	1403	9901	1576	9875	56
5	0886	9961	1060	9944	1233	9924	1406	9901	1579	9875	55
6	0889	9960	1063	9943	1236	9923	1409	9900	1582	9874	54
7	0892	9960	1066	9943	1239	9923	1412	9900	1584	9874	53
8	0895	9960	1068	9943	1242	9923	1415	9899	1587	9873	52
9	0898	9960	1071	9942	1245	9922	1418	9899	1590	9873	51
10	0901	9959	1074	9942	1248	9922	1421	9899	1593	9872	50
11	0903	9959	1077	9942	1250	9922	1423	9898	1596	9872	49
12	0906	9959	1080	9942	1253	9921	1426	9898	1599	9871	48
13	0909	9959	1083	9941	1256	9921	1429	9897	1602	9871	47
14	0912	9958	1086	9941	1259	9920	1432	9897	1606	9870	46
15	0915	9958	1089	9941	1262	9920	1435	9897	1607	9870	45
16	0918	9958	1092	9940	1265	9920	1438	9896	1610	9869	44
17	0921	9958	1094	9940	1268	9919	1441	9896	1613	9869	43
18	0924	9957	1097	9940	1271	9919	1444	9895	1616	9869	42
19	0927	9957	1100	9939	1274	9919	1446	9895	1619	9868	41
20	0929	9957	1103	9939	1276	9918	1449	9894	1622	9868	40
21	0932	9956	1106	9939	1279	9918	1452	9894	1625	9867	39
22	0935	9956	1109	9938	1282	9917	1455	9894	1628	9867	38
23	0938	9956	1112	9938	1285	9917	1458	9893	1630	9866	37
24	0941	9956	1115	9938	1288	9917	1461	9893	1633	9866	36
25	0944	9956	1118	9937	1291	9916	1464	9892	1636	9865	35
26	0947	9955	1120	9937	1294	9916	1467	9892	1639	9865	34
27	0950	9955	1123	9937	1297	9916	1469	9891	1642	9864	33
28	0953	9955	1126	9936	1299	9915	1472	9891	1645	9864	32
29	0956	9954	1129	9936	1302	9915	1475	9891	1648	9863	31
30	0958	9954	1132	9936	1305	9914	1478	9890	1650	9863	30
31	0961	9954	1135	9935	1308	9914	1481	9890	1653	9862	29
32	0964	9953	1138	9935	1311	9914	1484	9889	1656	9862	28
33	0967	9953	1141	9935	1314	9913	1487	9889	1659	9861	27
34	0970	9953	1144	9934	1317	9913	1490	9888	1662	9861	26
35	0973	9953	1146	9934	1320	9913	1492	9888	1665	9860	25
36	0976	9952	1149	9934	1323	9912	1495	9888	1668	9860	24
37	0979	9952	1152	9933	1325	9912	1498	9887	1671	9859	23
38	0982	9952	1155	9933	1328	9911	1501	9887	1673	9859	22
39	0985	9951	1158	9933	1331	9911	1504	9886	1676	9859	21
40	0987	9951	1161	9932	1334	9911	1507	9886	1679	9858	20
41	0990	9951	1164	9932	1337	9910	1510	9885	1682	9858	19
42	0993	9951	1167	9932	1340	9910	1513	9885	1685	9857	18
43	0996	9950	1170	9931	1343	9909	1516	9884	1688	9857	17
44	0999	9950	1172	9931	1346	9909	1518	9884	1691	9856	16
45	1002	9950	1175	9931	1349	9909	1521	9884	1693	9856	15
46	1005	9949	1178	9930	1351	9908	1524	9883	1696	9855	14
47	1008	9949	1181	9930	1354	9908	1527	9883	1699	9855	13
48	1011	9949	1184	9930	1357	9907	1530	9882	1702	9854	12
49	1013	9949	1187	9929	1360	9907	1533	9882	1705	9854	11
50	1016	9948	1190	9929	1363	9907	1536	9881	1708	9853	10
51	1019	9948	1193	9929	1366	9906	1538	9881	1711	9853	9
52	1022	9948	1196	9928	1369	9906	1541	9880	1714	9852	8
53	1025	9947	1198	9928	1372	9905	1544	9880	1716	9852	7
54	1028	9947	1201	9928	1374	9905	1547	9880	1719	9851	6
55	1031	9947	1204	9927	1377	9905	1550	9879	1722	9851	5
56	1034	9946	1207	9927	1380	9904	1553	9879	1725	9850	4
57	1037	9946	1210	9927	1383	9904	1556	9878	1728	9850	3
58	1039	9946	1213	9926	1386	9903	1559	9878	1731	9849	2
59	1042	9946	1216	9926	1389	9903	1561	9877	1734	9849	1
60	1045	9945	1219	9925	1392	9903	1564	9877	1736	9848	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	84°		83°		82°		81°		80°		



# NATURAL SINES AND COSINES

	10°		11°		12°		13°		14°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	1736	9848	1908	9816	2079	9781	2250	9744	2419	9703	60
1	1739	9848	1911	9816	2082	9781	2252	9743	2422	9702	59
2	1742	9847	1914	9815	2085	9780	2255	9742	2425	9702	58
3	1745	9847	1917	9815	2088	9780	2258	9742	2428	9701	57
4	1748	9846	1920	9814	2090	9779	2261	9741	2431	9700	56
5	1751	9846	1923	9813	2093	9778	2264	9740	2433	9699	55
6	1754	9845	1925	9813	2096	9778	2267	9740	2436	9699	54
7	1757	9845	1928	9812	2099	9777	2269	9739	2439	9698	53
8	1759	9844	1931	9812	2102	9777	2272	9738	2442	9697	52
9	1762	9843	1934	9811	2105	9776	2275	9738	2445	9697	51
10	1765	9843	1937	9811	2108	9775	2278	9737	2447	9696	50
11	1768	9842	1939	9810	2110	9775	2281	9736	2450	9695	49
12	1771	9842	1942	9810	2113	9774	2284	9736	2453	9694	48
13	1774	9841	1945	9809	2116	9774	2286	9735	2456	9694	47
14	1777	9841	1948	9808	2119	9773	2289	9734	2459	9693	46
15	1779	9840	1951	9808	2122	9772	2292	9734	2462	9692	45
16	1782	9840	1954	9807	2125	9772	2295	9733	2464	9692	44
17	1785	9839	1957	9807	2127	9771	2298	9732	2467	9691	43
18	1788	9839	1959	9806	2130	9770	2300	9732	2470	9690	42
19	1791	9838	1962	9806	2133	9770	2303	9731	2473	9689	41
20	1794	9838	1965	9805	2136	9769	2306	9730	2476	9688	40
21	1797	9837	1968	9804	2139	9769	2309	9730	2478	9688	39
22	1799	9837	1971	9804	2142	9768	2312	9729	2481	9687	38
23	1802	9836	1974	9803	2145	9767	2315	9728	2484	9687	37
24	1805	9836	1977	9803	2147	9767	2317	9728	2487	9686	36
25	1808	9835	1979	9802	2150	9766	2320	9727	2490	9685	35
26	1811	9835	1982	9802	2153	9765	2323	9726	2493	9684	34
27	1814	9834	1985	9801	2156	9765	2326	9726	2495	9684	33
28	1817	9834	1988	9800	2159	9764	2329	9725	2498	9683	32
29	1819	9833	1991	9800	2162	9764	2332	9724	2501	9682	31
30	1822	9833	1994	9799	2164	9763	2334	9724	2504	9681	30
31	1825	9832	1997	9799	2167	9762	2337	9723	2507	9681	29
32	1828	9831	1999	9798	2170	9762	2340	9722	2509	9680	28
33	1831	9831	2002	9798	2173	9761	2343	9722	2512	9679	27
34	1834	9830	2005	9797	2176	9760	2346	9721	2515	9679	26
35	1837	9830	2008	9796	2179	9760	2349	9720	2518	9678	25
36	1840	9829	2011	9796	2181	9759	2351	9720	2521	9677	24
37	1842	9829	2014	9795	2184	9759	2354	9719	2524	9677	23
38	1845	9828	2016	9795	2187	9758	2357	9718	2526	9676	22
39	1848	9828	2019	9794	2190	9757	2360	9718	2529	9676	21
40	1851	9827	2022	9793	2193	9757	2363	9717	2532	9675	20
41	1854	9827	2025	9793	2196	9756	2366	9716	2535	9673	19
42	1857	9826	2028	9792	2198	9755	2368	9715	2538	9673	18
43	1860	9826	2031	9792	2201	9755	2371	9715	2540	9672	17
44	1862	9825	2034	9791	2204	9754	2374	9714	2543	9671	16
45	1865	9825	2036	9790	2207	9753	2377	9713	2546	9670	15
46	1868	9824	2039	9790	2210	9753	2380	9713	2549	9670	14
47	1871	9823	2042	9789	2213	9752	2383	9712	2552	9669	13
48	1874	9823	2045	9789	2215	9751	2385	9711	2554	9668	12
49	1877	9822	2048	9788	2218	9751	2388	9711	2557	9667	11
50	1880	9822	2051	9787	2221	9750	2391	9710	2560	9667	10
51	1882	9821	2054	9787	2224	9750	2394	9709	2563	9666	9
52	1885	9821	2056	9786	2227	9749	2397	9709	2566	9665	8
53	1888	9820	2059	9786	2230	9748	2399	9708	2569	9665	7
54	1891	9820	2062	9785	2233	9748	2402	9707	2571	9664	6
55	1894	9819	2065	9784	2236	9747	2405	9706	2574	9663	5
56	1897	9818	2068	9784	2238	9746	2408	9706	2577	9662	4
57	1900	9818	2071	9783	2241	9746	2411	9705	2580	9662	3
58	1902	9817	2073	9783	2244	9745	2414	9704	2583	9661	2
59	1905	9817	2076	9782	2247	9744	2416	9704	2585	9660	1
60	1908	9816	2079	9781	2250	9744	2419	9703	2588	9659	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	79°		78°		77°		76°		75°		

## NATURAL SINES AND COSINES

12

	15°		16°		17°		18°		19°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	2568	9669	2756	9613	2924	9563	3090	9511	3256	9455	60
1	2591	9659	2759	9612	2926	9562	3093	9510	3258	9454	59
2	2594	9658	2762	9611	2929	9561	3096	9509	3261	9453	58
3	2597	9657	2765	9610	2932	9560	3098	9508	3264	9452	57
4	2599	9656	2768	9609	2935	9559	3101	9507	3267	9451	56
5	2602	9655	2770	9608	2938	9558	3104	9506	3269	9450	55
6	2605	9655	2773	9608	2940	9558	3107	9505	3272	9449	54
7	2608	9654	2776	9607	2943	9557	3110	9504	3275	9449	53
8	2611	9653	2779	9606	2946	9556	3112	9503	3278	9448	52
9	2613	9652	2782	9605	2949	9555	3115	9502	3280	9447	51
10	2616	9652	2784	9605	2952	9555	3118	9502	3283	9446	50
11	2619	9651	2787	9604	2954	9554	3121	9501	3286	9445	49
12	2622	9650	2790	9603	2957	9553	3123	9500	3289	9444	48
13	2625	9649	2793	9602	2960	9552	3126	9499	3291	9443	47
14	2628	9649	2795	9601	2963	9551	3129	9498	3294	9442	46
15	2630	9648	2798	9600	2965	9550	3132	9497	3297	9441	45
16	2633	9647	2801	9600	2968	9549	3134	9496	3300	9440	44
17	2636	9646	2804	9599	2971	9548	3137	9495	3302	9439	43
18	2639	9646	2807	9598	2974	9548	3140	9494	3305	9438	42
19	2642	9645	2809	9597	2977	9547	3143	9493	3308	9437	41
20	2644	9644	2812	9596	2979	9546	3145	9492	3311	9436	40
21	2647	9643	2815	9596	2982	9545	3148	9492	3313	9435	39
22	2650	9642	2818	9595	2985	9544	3151	9491	3316	9434	38
23	2653	9642	2821	9594	2988	9543	3154	9490	3319	9433	37
24	2656	9641	2823	9593	2990	9542	3156	9489	3322	9432	36
25	2658	9640	2826	9592	2993	9542	3159	9488	3324	9431	35
26	2661	9639	2829	9591	2996	9541	3162	9487	3327	9430	34
27	2664	9639	2832	9591	2999	9540	3165	9486	3330	9429	33
28	2667	9638	2835	9590	3002	9539	3168	9485	3333	9428	32
29	2670	9637	2837	9589	3004	9538	3170	9484	3335	9427	31
30	2673	9636	2840	9588	3007	9537	3173	9483	3338	9426	30
31	2675	9636	2843	9587	3010	9536	3176	9482	3341	9425	29
32	2678	9635	2846	9587	3013	9535	3179	9481	3344	9424	28
33	2681	9634	2849	9586	3015	9535	3181	9480	3346	9423	27
34	2684	9633	2851	9585	3018	9534	3184	9480	3349	9423	26
35	2686	9632	2854	9584	3021	9533	3187	9479	3352	9422	25
36	2689	9632	2857	9583	3024	9532	3190	9478	3355	9421	24
37	2692	9631	2860	9582	3026	9531	3192	9477	3357	9420	23
38	2695	9630	2862	9582	3029	9530	3195	9476	3360	9419	22
39	2698	9629	2865	9581	3032	9529	3198	9475	3363	9418	21
40	2700	9628	2868	9580	3035	9528	3201	9474	3365	9417	20
41	2703	9628	2871	9579	3038	9527	3203	9473	3368	9416	19
42	2706	9627	2874	9578	3040	9527	3206	9472	3371	9415	18
43	2709	9626	2876	9577	3043	9526	3209	9471	3374	9414	17
44	2712	9625	2879	9577	3046	9525	3212	9470	3376	9413	16
45	2714	9625	2882	9576	3049	9524	3214	9469	3379	9412	15
46	2717	9624	2885	9575	3051	9523	3217	9468	3382	9411	14
47	2720	9623	2888	9574	3054	9522	3220	9467	3385	9410	13
48	2723	9622	2890	9573	3057	9521	3223	9466	3387	9409	12
49	2726	9621	2893	9572	3060	9520	3225	9466	3390	9408	11
50	2728	9621	2896	9572	3063	9520	3228	9465	3393	9407	10
51	2731	9620	2899	9571	3065	9519	3231	9464	3396	9406	9
52	2734	9619	2901	9570	3068	9518	3234	9463	3398	9405	8
53	2737	9618	2904	9569	3071	9517	3236	9462	3401	9404	7
54	2740	9617	2907	9568	3074	9516	3239	9461	3404	9403	6
55	2743	9617	2910	9567	3076	9515	3242	9460	3407	9402	5
56	2745	9616	2913	9566	3079	9514	3245	9459	3409	9401	4
57	2748	9615	2915	9566	3082	9513	3247	9458	3412	9400	3
58	2751	9614	2918	9565	3085	9512	3250	9457	3415	9399	2
59	2754	9613	2921	9564	3087	9511	3253	9456	3417	9398	1
60	2756	9613	2924	9563	3090	9511	3256	9455	3420	9397	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	74°		73°		72°		71°		70°		

	20°		21°		22°		23°		24°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	3420	9397	3534	9336	3746	9272	3907	9205	4067	9135	60
1	3423	9396	3536	9335	3749	9271	3910	9204	4070	9134	59
2	3426	9395	3539	9334	3751	9270	3913	9203	4073	9133	58
3	3428	9394	3542	9333	3754	9269	3915	9202	4076	9132	57
4	3431	9393	3545	9332	3757	9267	3918	9200	4078	9131	56
5	3434	9392	3547	9331	3760	9266	3921	9199	4081	9130	55
6	3437	9391	3550	9330	3762	9265	3923	9198	4083	9128	54
7	3439	9390	3553	9328	3765	9264	3926	9197	4086	9127	53
8	3442	9389	3555	9327	3768	9263	3929	9196	4089	9126	52
9	3445	9388	3558	9326	3770	9262	3931	9195	4091	9125	51
10	3448	9387	3561	9325	3773	9261	3934	9194	4094	9124	50
11	3450	9386	3564	9324	3776	9260	3937	9193	4097	9122	49
12	3453	9385	3566	9323	3778	9259	3939	9191	4099	9121	48
13	3456	9384	3569	9322	3781	9258	3942	9190	4102	9120	47
14	3458	9383	3572	9321	3784	9257	3945	9189	4105	9119	46
15	3461	9382	3574	9320	3786	9256	3947	9188	4107	9118	45
16	3464	9381	3577	9319	3789	9254	3950	9187	4110	9116	44
17	3467	9380	3580	9318	3792	9253	3953	9186	4112	9115	43
18	3469	9379	3583	9317	3795	9252	3955	9184	4115	9114	42
19	3472	9378	3585	9316	3797	9251	3958	9183	4118	9113	41
20	3475	9377	3588	9315	3800	9250	3961	9182	4120	9112	40
21	3478	9376	3591	9314	3803	9249	3963	9181	4123	9110	39
22	3480	9375	3593	9313	3805	9248	3966	9180	4126	9109	38
23	3483	9374	3596	9312	3808	9247	3969	9179	4128	9108	37
24	3486	9373	3599	9311	3811	9245	3971	9178	4131	9107	36
25	3488	9372	3601	9309	3813	9244	3974	9176	4134	9106	35
26	3491	9371	3604	9308	3816	9243	3977	9175	4136	9104	34
27	3494	9370	3607	9307	3819	9242	3979	9174	4139	9103	33
28	3497	9369	3610	9306	3821	9241	3982	9173	4142	9102	32
29	3499	9368	3612	9305	3824	9240	3985	9172	4144	9101	31
30	3502	9367	3615	9304	3827	9239	3987	9171	4147	9100	30
31	3505	9366	3618	9303	3830	9238	3990	9169	4150	9098	29
32	3508	9365	3620	9302	3832	9237	3993	9168	4153	9097	28
33	3510	9364	3623	9301	3835	9235	3995	9167	4155	9096	27
34	3513	9363	3626	9300	3838	9234	3998	9166	4158	9095	26
35	3516	9362	3629	9299	3840	9233	4001	9165	4160	9094	25
36	3518	9361	3631	9298	3843	9232	4003	9164	4163	9092	24
37	3521	9360	3634	9297	3846	9231	4006	9162	4165	9091	23
38	3524	9359	3637	9296	3848	9230	4009	9161	4168	9090	22
39	3527	9358	3639	9295	3851	9229	4011	9160	4171	9089	21
40	3529	9356	3642	9293	3854	9228	4014	9158	4173	9088	20
41	3532	9355	3645	9292	3856	9227	4017	9158	4176	9086	19
42	3535	9354	3647	9291	3859	9225	4019	9157	4179	9085	18
43	3537	9353	3650	9290	3862	9224	4022	9155	4181	9084	17
44	3540	9352	3653	9289	3864	9223	4025	9154	4184	9083	16
45	3543	9351	3656	9288	3867	9222	4027	9153	4187	9081	15
46	3546	9350	3659	9287	3870	9221	4030	9152	4189	9080	14
47	3548	9349	3661	9286	3872	9220	4033	9151	4192	9079	13
48	3551	9348	3664	9285	3875	9219	4035	9150	4195	9078	12
49	3554	9347	3667	9284	3878	9218	4038	9148	4197	9077	11
50	3557	9346	3670	9283	3881	9216	4041	9147	4200	9075	10
51	3559	9345	3672	9282	3883	9215	4043	9146	4202	9074	9
52	3562	9344	3675	9281	3886	9214	4046	9145	4205	9073	8
53	3565	9343	3677	9279	3889	9213	4049	9144	4208	9072	7
54	3567	9342	3680	9278	3891	9212	4051	9143	4210	9070	6
55	3570	9341	3683	9277	3894	9211	4054	9141	4213	9069	5
56	3573	9340	3685	9276	3897	9210	4057	9140	4216	9068	4
57	3576	9339	3688	9275	3899	9208	4059	9139	4218	9067	3
58	3578	9338	3691	9274	3902	9207	4062	9138	4221	9066	2
59	3581	9337	3693	9273	3905	9206	4065	9137	4224	9064	1
60	3584	9336	3746	9272	3907	9205	4067	9135	4226	9063	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	60°		65°		67°		68°		69°		

	25°		26°		27°		28°		29°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	4326	9063	4384	8988	4440	8910	4495	8829	4548	8746	60
1	4229	9062	4386	8987	4542	8909	4697	8828	4851	8745	59
2	4231	9061	4389	8985	4545	8907	4700	8827	4853	8743	58
3	4234	9059	4392	8984	4548	8906	4702	8825	4856	8742	57
4	4237	9058	4394	8983	4550	8905	4705	8824	4858	8741	56
5	4239	9057	4397	8983	4553	8903	4708	8823	4861	8739	55
6	4242	9056	4399	8980	4555	8902	4710	8821	4863	8738	54
7	4245	9054	4402	8979	4558	8901	4713	8820	4866	8736	53
8	4247	9053	4405	8978	4561	8899	4715	8819	4868	8735	52
9	4250	9052	4407	8976	4563	8898	4718	8817	4871	8733	51
10	4253	9051	4410	8975	4566	8897	4720	8816	4874	8732	50
11	4255	9050	4412	8974	4568	8895	4723	8814	4876	8731	49
12	4258	9048	4415	8973	4571	8894	4726	8813	4879	8729	48
13	4260	9047	4418	8971	4574	8893	4728	8812	4881	8728	47
14	4263	9046	4420	8970	4576	8892	4731	8810	4884	8726	46
15	4266	9045	4423	8969	4579	8890	4733	8809	4886	8725	45
16	4268	9043	4425	8967	4581	8889	4736	8808	4889	8724	44
17	4271	9042	4428	8966	4584	8888	4738	8806	4891	8722	43
18	4274	9041	4431	8965	4586	8886	4741	8805	4894	8721	42
19	4276	9040	4433	8964	4589	8885	4743	8803	4896	8719	41
20	4279	9038	4436	8963	4592	8884	4746	8802	4899	8718	40
21	4281	9037	4439	8961	4594	8882	4749	8801	4901	8716	39
22	4284	9036	4441	8960	4597	8881	4751	8799	4904	8715	38
23	4287	9035	4444	8958	4599	8879	4754	8798	4907	8714	37
24	4289	9033	4446	8957	4602	8878	4756	8796	4909	8712	36
25	4292	9032	4449	8956	4605	8877	4759	8795	4912	8711	35
26	4295	9031	4452	8955	4607	8875	4761	8794	4914	8709	34
27	4297	9030	4454	8953	4610	8874	4764	8792	4917	8708	33
28	4300	9028	4457	8952	4612	8873	4766	8791	4919	8706	32
29	4302	9027	4459	8951	4615	8871	4769	8790	4922	8705	31
30	4305	9026	4462	8949	4617	8870	4772	8788	4924	8704	30
31	4308	9025	4465	8948	4620	8869	4774	8787	4927	8702	29
32	4310	9023	4467	8947	4623	8867	4777	8785	4929	8701	28
33	4313	9022	4470	8945	4625	8866	4779	8784	4932	8699	27
34	4316	9021	4472	8944	4628	8865	4782	8783	4934	8698	26
35	4318	9020	4475	8943	4630	8863	4784	8781	4937	8696	25
36	4321	9018	4478	8942	4633	8862	4787	8780	4939	8695	24
37	4323	9017	4480	8940	4636	8861	4789	8778	4942	8694	23
38	4326	9016	4483	8939	4638	8859	4792	8777	4944	8692	22
39	4329	9015	4485	8938	4641	8858	4795	8776	4947	8691	21
40	4331	9013	4488	8936	4643	8857	4797	8774	4950	8689	20
41	4334	9012	4491	8935	4646	8855	4800	8773	4952	8688	19
42	4337	9011	4493	8934	4648	8854	4802	8771	4955	8686	18
43	4339	9010	4496	8932	4651	8853	4805	8770	4957	8685	17
44	4342	9008	4498	8931	4654	8851	4807	8769	4960	8683	16
45	4344	9007	4501	8930	4656	8850	4810	8767	4962	8682	15
46	4347	9006	4504	8928	4659	8849	4812	8766	4965	8681	14
47	4350	9004	4506	8927	4661	8847	4815	8764	4967	8679	13
48	4352	9003	4509	8926	4664	8846	4818	8763	4970	8678	12
49	4355	9002	4511	8925	4666	8844	4820	8762	4972	8676	11
50	4358	9001	4514	8923	4669	8843	4823	8760	4975	8675	10
51	4360	8999	4517	8922	4672	8842	4825	8759	4977	8673	9
52	4363	8998	4519	8921	4674	8840	4828	8757	4980	8672	8
53	4365	8997	4522	8919	4677	8839	4830	8756	4982	8670	7
54	4368	8996	4524	8918	4679	8838	4833	8755	4985	8669	6
55	4371	8994	4527	8917	4682	8836	4835	8753	4987	8668	5
56	4373	8993	4530	8915	4684	8835	4838	8752	4990	8666	4
57	4376	8992	4532	8914	4687	8834	4840	8750	4992	8665	3
58	4378	8990	4535	8913	4690	8832	4843	8749	4995	8663	2
59	4381	8989	4537	8911	4692	8831	4846	8748	4997	8662	1
60	4384	8988	4540	8910	4695	8829	4848	8746	5000	8660	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	64°		63°		62°		61°		60°		

	30°		31°		32°		33°		34°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	5000	8660	5150	8572	5299	8480	5446	8387	5592	8290	60
1	5003	8659	5153	8570	5302	8479	5449	8385	5594	8289	59
2	5005	8657	5155	8569	5304	8477	5451	8384	5597	8287	58
3	5008	8656	5158	8567	5307	8476	5454	8382	5599	8285	57
4	5010	8654	5160	8566	5309	8474	5456	8380	5602	8284	56
5	5013	8653	5163	8564	5312	8473	5459	8379	5604	8282	55
6	5015	8652	5165	8563	5314	8471	5461	8377	5606	8281	54
7	5018	8650	5168	8561	5316	8470	5463	8376	5609	8279	53
8	5020	8649	5170	8560	5319	8468	5466	8374	5611	8277	52
9	5023	8647	5173	8558	5321	8467	5468	8372	5614	8276	51
10	5025	8646	5175	8557	5324	8465	5471	8371	5616	8274	50
11	5028	8644	5178	8555	5326	8463	5473	8369	5618	8272	49
12	5030	8643	5180	8554	5329	8462	5476	8368	5621	8271	48
13	5033	8641	5183	8552	5331	8460	5478	8366	5623	8269	47
14	5035	8640	5185	8551	5334	8459	5480	8364	5626	8268	46
15	5038	8638	5188	8549	5336	8457	5483	8363	5628	8266	45
16	5040	8637	5190	8548	5339	8456	5485	8361	5630	8264	44
17	5043	8635	5193	8546	5341	8454	5488	8360	5633	8263	43
18	5045	8634	5195	8545	5344	8453	5490	8358	5635	8261	42
19	5048	8632	5198	8543	5346	8451	5493	8356	5638	8259	41
20	5050	8631	5200	8542	5348	8450	5495	8355	5640	8258	40
21	5053	8630	5203	8540	5351	8448	5498	8353	5642	8256	39
22	5055	8628	5205	8539	5353	8446	5500	8352	5645	8254	38
23	5058	8627	5208	8537	5356	8445	5502	8350	5647	8253	37
24	5060	8625	5210	8536	5358	8443	5505	8348	5650	8251	36
25	5063	8624	5213	8534	5361	8442	5507	8347	5652	8249	35
26	5065	8622	5215	8532	5363	8440	5510	8345	5654	8248	34
27	5068	8621	5218	8531	5366	8439	5512	8344	5657	8246	33
28	5070	8619	5220	8529	5368	8437	5515	8342	5659	8245	32
29	5073	8618	5223	8528	5371	8435	5517	8340	5662	8243	31
30	5075	8616	5225	8526	5373	8434	5519	8339	5664	8241	30
31	5078	8615	5227	8525	5375	8432	5522	8337	5666	8240	29
32	5080	8613	5230	8523	5378	8431	5524	8336	5669	8238	28
33	5083	8612	5232	8522	5380	8429	5527	8334	5671	8236	27
34	5085	8610	5235	8520	5383	8428	5529	8332	5674	8235	26
35	5088	8609	5237	8519	5385	8426	5531	8331	5676	8233	25
36	5090	8607	5240	8517	5388	8425	5534	8329	5678	8231	24
37	5093	8606	5242	8516	5390	8423	5536	8328	5681	8230	23
38	5095	8604	5245	8514	5393	8421	5539	8326	5683	8228	22
39	5098	8603	5247	8513	5395	8420	5541	8324	5686	8226	21
40	5100	8601	5250	8511	5398	8418	5544	8323	5688	8225	20
41	5103	8600	5252	8510	5400	8417	5546	8321	5690	8223	19
42	5105	8599	5255	8508	5402	8415	5548	8320	5693	8221	18
43	5108	8597	5257	8507	5405	8414	5551	8318	5695	8220	17
44	5110	8596	5260	8505	5407	8412	5553	8316	5698	8218	16
45	5113	8594	5262	8504	5410	8410	5556	8315	5700	8216	15
46	5115	8593	5265	8502	5412	8409	5558	8313	5702	8215	14
47	5118	8591	5267	8500	5415	8407	5561	8311	5705	8213	13
48	5120	8590	5270	8499	5417	8406	5563	8310	5707	8211	12
49	5123	8588	5272	8497	5420	8404	5565	8308	5710	8210	11
50	5125	8587	5275	8496	5423	8403	5568	8307	5712	8208	10
51	5128	8585	5277	8494	5424	8401	5570	8305	5714	8207	9
52	5130	8584	5279	8493	5427	8399	5573	8303	5717	8205	8
53	5133	8582	5282	8491	5429	8398	5575	8302	5719	8203	7
54	5135	8581	5284	8490	5432	8396	5577	8300	5721	8202	6
55	5138	8579	5287	8488	5434	8395	5580	8299	5724	8200	5
56	5140	8578	5289	8487	5437	8393	5582	8297	5726	8198	4
57	5143	8576	5292	8485	5439	8391	5585	8295	5729	8197	3
58	5145	8575	5294	8484	5442	8390	5587	8294	5731	8195	2
59	5148	8573	5297	8482	5444	8388	5590	8292	5733	8193	1
60	5150	8572	5299	8480	5446	8387	5592	8290	5736	8192	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	50°		51°		52°		53°		54°		

# NATURAL SINES AND COSINES

1

	35°		36°		37°		38°		39°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	5735	8192	5578	8090	6018	7966	6157	7880	6293	7771	60
1	5738	8190	5580	8088	6020	7965	6159	7878	6295	7770	59
2	5741	8188	5583	8087	6023	7963	6161	7877	6298	7768	58
3	5743	8187	5585	8085	6025	7961	6163	7875	6300	7766	57
4	5745	8185	5587	8083	6027	7979	6166	7873	6302	7764	56
5	5748	8183	5590	8082	6030	7978	6168	7871	6305	7762	55
6	5750	8181	5592	8080	6032	7976	6170	7869	6307	7760	54
7	5752	8180	5594	8078	6034	7974	6173	7868	6309	7759	53
8	5755	8178	5597	8076	6037	7972	6175	7866	6311	7757	52
9	5757	8176	5599	8075	6039	7971	6177	7864	6314	7755	51
10	5760	8175	5601	8073	6041	7969	6180	7862	6316	7753	50
11	5762	8173	5604	8071	6044	7967	6182	7860	6318	7751	49
12	5764	8171	5606	8070	6046	7965	6184	7859	6320	7749	48
13	5767	8170	5608	8068	6048	7964	6186	7857	6323	7748	47
14	5769	8168	5611	8066	6051	7962	6189	7855	6325	7746	46
15	5771	8166	5613	8064	6053	7960	6191	7853	6327	7744	45
16	5774	8165	5615	8063	6055	7958	6193	7851	6329	7742	44
17	5776	8163	5618	8061	6058	7956	6196	7850	6332	7740	43
18	5779	8161	5620	8059	6060	7955	6198	7848	6334	7738	42
19	5781	8160	5622	8058	6062	7953	6200	7846	6336	7737	41
20	5783	8158	5625	8056	6065	7951	6202	7844	6338	7735	40
21	5786	8156	5627	8054	6067	7949	6205	7842	6341	7733	39
22	5788	8155	5630	8052	6069	7948	6207	7841	6343	7731	38
23	5790	8153	5632	8051	6071	7946	6209	7839	6345	7729	37
24	5793	8151	5634	8049	6074	7944	6211	7837	6347	7727	36
25	5795	8150	5637	8047	6076	7943	6214	7835	6350	7725	35
26	5798	8148	5639	8045	6078	7941	6216	7833	6352	7724	34
27	5800	8146	5641	8044	6081	7939	6218	7832	6354	7722	33
28	5802	8145	5644	8042	6083	7937	6221	7830	6356	7720	32
29	5805	8143	5646	8040	6085	7935	6223	7828	6359	7718	31
30	5807	8141	5648	8039	6088	7934	6225	7826	6361	7716	30
31	5809	8139	5651	8037	6090	7932	6227	7824	6363	7714	29
32	5812	8138	5653	8035	6092	7930	6230	7822	6365	7713	28
33	5814	8136	5655	8033	6095	7928	6232	7821	6368	7711	27
34	5816	8134	5658	8032	6097	7926	6234	7819	6370	7709	26
35	5819	8133	5660	8030	6099	7925	6237	7817	6373	7707	25
36	5821	8131	5662	8028	6101	7923	6239	7815	6374	7705	24
37	5824	8129	5665	8026	6104	7921	6241	7813	6376	7703	23
38	5826	8128	5667	8025	6106	7919	6243	7812	6379	7701	22
39	5828	8126	5669	8023	6108	7918	6246	7810	6381	7700	21
40	5831	8124	5672	8021	6111	7916	6248	7808	6383	7698	20
41	5833	8123	5674	8020	6113	7914	6250	7806	6385	7696	19
42	5835	8121	5676	8018	6115	7912	6252	7804	6388	7694	18
43	5838	8119	5679	8016	6118	7910	6255	7802	6390	7692	17
44	5840	8117	5681	8014	6120	7909	6257	7801	6392	7690	16
45	5842	8116	5683	8013	6122	7907	6259	7799	6394	7688	15
46	5845	8114	5686	8011	6124	7905	6262	7797	6397	7687	14
47	5847	8112	5688	8009	6127	7903	6264	7795	6399	7685	13
48	5850	8111	5690	8007	6129	7902	6266	7793	6401	7683	12
49	5852	8109	5693	8006	6131	7900	6268	7792	6403	7681	11
50	5854	8107	5695	8004	6134	7898	6271	7790	6406	7679	10
51	5857	8106	5697	8002	6136	7896	6273	7788	6408	7677	9
52	5859	8104	6000	8000	6138	7894	6275	7786	6410	7675	8
53	5861	8102	6002	7999	6141	7893	6277	7784	6412	7674	7
54	5864	8100	6004	7997	6143	7891	6280	7782	6414	7672	6
55	5866	8099	6007	7995	6145	7889	6282	7781	6417	7670	5
56	5868	8097	6009	7993	6147	7887	6284	7779	6419	7668	4
57	5871	8095	6011	7992	6150	7885	6286	7777	6421	7666	3
58	5873	8094	6014	7990	6152	7884	6289	7775	6423	7664	2
59	5875	8092	6016	7988	6154	7882	6291	7773	6426	7662	1
60	5878	8090	6018	7986	6157	7880	6293	7771	6428	7660	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	

	40°		41°		42°		43°		44°		
	sin	cos	sin	cos	sin	cos	sin	cos	sin	cos	
0	6438	7660	6561	7547	6691	7431	6820	7314	6947	7193	60
1	6430	7659	6563	7545	6693	7430	6822	7312	6949	7191	59
2	6432	7657	6565	7543	6696	7428	6824	7310	6951	7189	58
3	6435	7655	6567	7541	6698	7426	6826	7308	6953	7187	57
4	6437	7653	6569	7539	6700	7424	6828	7306	6955	7185	56
5	6439	7651	6571	7538	6702	7422	6831	7304	6957	7183	55
6	6441	7649	6574	7536	6704	7420	6833	7302	6959	7181	54
7	6443	7647	6576	7534	6706	7418	6835	7300	6961	7179	53
8	6446	7645	6578	7532	6709	7416	6837	7298	6963	7177	52
9	6448	7644	6580	7530	6711	7414	6839	7296	6965	7175	51
10	6450	7642	6583	7528	6713	7412	6841	7294	6967	7173	50
11	6452	7640	6585	7526	6715	7410	6843	7292	6970	7171	49
12	6455	7638	6587	7524	6717	7408	6845	7290	6972	7169	48
13	6457	7636	6589	7522	6719	7406	6848	7288	6974	7167	47
14	6459	7634	6591	7520	6722	7404	6850	7286	6976	7165	46
15	6461	7632	6593	7518	6724	7402	6852	7284	6978	7163	45
16	6463	7630	6596	7516	6726	7400	6854	7282	6980	7161	44
17	6466	7629	6598	7515	6728	7398	6856	7280	6982	7159	43
18	6468	7627	6600	7513	6730	7396	6858	7278	6984	7157	42
19	6470	7625	6602	7511	6732	7394	6860	7276	6986	7155	41
20	6472	7623	6604	7509	6734	7392	6862	7274	6988	7153	40
21	6475	7621	6607	7507	6737	7390	6865	7272	6990	7151	39
22	6477	7619	6609	7505	6739	7388	6867	7270	6992	7149	38
23	6479	7617	6611	7503	6741	7387	6869	7268	6995	7147	37
24	6481	7615	6613	7501	6743	7385	6871	7266	6997	7145	36
25	6483	7613	6615	7499	6745	7383	6873	7264	6999	7143	35
26	6486	7612	6617	7497	6747	7381	6875	7262	7001	7141	34
27	6488	7610	6620	7495	6749	7379	6877	7260	7003	7139	33
28	6490	7608	6622	7493	6752	7377	6879	7258	7005	7137	32
29	6492	7606	6624	7491	6754	7375	6881	7256	7007	7135	31
30	6494	7604	6626	7490	6756	7373	6884	7254	7009	7133	30
31	6497	7602	6628	7488	6758	7371	6886	7252	7011	7130	29
32	6499	7600	6631	7486	6760	7369	6888	7250	7013	7128	28
33	6501	7598	6633	7484	6762	7367	6890	7248	7015	7126	27
34	6503	7596	6635	7482	6764	7365	6892	7246	7017	7124	26
35	6506	7595	6637	7480	6767	7363	6894	7244	7019	7122	25
36	6508	7593	6639	7478	6769	7361	6896	7242	7022	7120	24
37	6510	7591	6641	7476	6771	7359	6898	7240	7024	7118	23
38	6512	7589	6644	7474	6773	7357	6900	7238	7026	7116	22
39	6514	7587	6646	7472	6775	7355	6903	7236	7028	7114	21
40	6517	7585	6648	7470	6777	7353	6905	7234	7030	7112	20
41	6519	7583	6650	7468	6779	7351	6907	7232	7032	7110	19
42	6521	7581	6652	7466	6782	7349	6909	7230	7034	7108	18
43	6523	7579	6654	7464	6784	7347	6911	7228	7036	7106	17
44	6525	7578	6657	7463	6786	7345	6913	7226	7038	7104	16
45	6528	7576	6659	7461	6788	7343	6915	7224	7040	7102	15
46	6530	7574	6661	7459	6790	7341	6917	7222	7042	7100	14
47	6532	7572	6663	7457	6792	7339	6919	7220	7044	7098	13
48	6534	7570	6665	7455	6794	7337	6921	7218	7046	7096	12
49	6536	7568	6667	7453	6797	7335	6924	7216	7048	7094	11
50	6539	7566	6670	7451	6799	7333	6926	7214	7050	7092	10
51	6541	7564	6672	7449	6801	7331	6928	7212	7053	7090	9
52	6543	7562	6674	7447	6803	7329	6930	7210	7055	7088	8
53	6545	7560	6676	7445	6806	7327	6932	7208	7057	7086	7
54	6547	7559	6678	7443	6807	7325	6934	7206	7059	7083	6
55	6550	7557	6680	7441	6809	7323	6936	7203	7061	7081	5
56	6552	7555	6683	7439	6811	7321	6938	7201	7063	7079	4
57	6554	7553	6685	7437	6814	7319	6940	7199	7065	7077	3
58	6556	7551	6687	7435	6816	7318	6942	7197	7067	7075	2
59	6558	7549	6689	7433	6818	7316	6944	7195	7069	7073	1
60	6561	7547	6691	7431	6820	7314	6947	7193	7071	7071	0
	cos	sin	cos	sin	cos	sin	cos	sin	cos	sin	
	49°		48°		47°		46°		45°		

## NATURAL TANGENTS AND COTANGENTS

12

	0°		1°		2°		3°		4°		
'	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	'
0	0000	Infinite	0175	57.2900	0349	28.6363	0524	19.0811	0699	14.3007	60
1	0003	3437.75	0177	56.3506	0352	28.3994	0527	18.9755	0702	14.2411	59
2	0006	1718.87	0180	55.4415	0355	28.1664	0530	18.8711	0705	14.1821	58
3	0009	1145.92	0183	54.5613	0358	27.9372	0533	18.7678	0708	14.1235	57
4	0012	859.436	0186	53.7086	0361	27.7117	0536	18.6656	0711	14.0655	56
5	0015	687.549	0189	52.8821	0364	27.4899	0539	18.5645	0714	14.0079	55
6	0017	572.957	0192	52.0807	0367	27.2715	0542	18.4645	0717	13.9507	54
7	0020	491.106	0195	51.3032	0370	27.0566	0544	18.3655	0720	13.8940	53
8	0023	429.718	0198	50.5485	0373	26.8450	0547	18.2677	0723	13.8378	52
9	0026	381.971	0201	49.8157	0376	26.6367	0550	18.1708	0726	13.7821	51
10	0029	343.774	0204	49.1039	0378	26.4316	0553	18.0750	0729	13.7267	50
11	0032	312.521	0207	48.4121	0381	26.2296	0556	17.9802	0731	13.6719	49
12	0035	286.478	0209	47.7395	0384	26.0307	0559	17.8863	0734	13.6174	48
13	0038	264.441	0212	47.0853	0387	25.8348	0562	17.7934	0737	13.5634	47
14	0041	245.552	0215	46.4489	0390	25.6418	0565	17.7015	0740	13.5098	46
15	0044	229.183	0218	45.8294	0393	25.4517	0568	17.6106	0743	13.4566	45
16	0047	214.858	0221	45.2261	0396	25.2644	0571	17.5205	0746	13.4039	44
17	0049	202.219	0224	44.6386	0399	25.0798	0574	17.4314	0749	13.3515	43
18	0052	190.984	0227	44.0661	0402	24.8978	0577	17.3432	0752	13.2996	42
19	0055	180.932	0230	43.5081	0405	24.7185	0580	17.2558	0755	13.2480	41
20	0058	171.885	0233	42.9641	0407	24.5418	0583	17.1693	0758	13.1969	40
21	0061	163.700	0236	42.4335	0410	24.3675	0585	17.0837	0761	13.1461	39
22	0064	156.259	0239	41.9158	0413	24.1957	0588	16.9990	0764	13.0958	38
23	0067	149.465	0241	41.4106	0416	24.0263	0591	16.9150	0767	13.0458	37
24	0070	143.237	0244	40.9174	0419	23.8593	0594	16.8319	0769	12.9962	36
25	0073	137.567	0247	40.4355	0422	23.6945	0597	16.7496	0772	12.9469	35
26	0076	132.219	0250	39.9655	0425	23.5321	0600	16.6681	0775	12.8981	34
27	0079	127.321	0253	39.5059	0428	23.3718	0603	16.5874	0778	12.8496	33
28	0081	122.774	0256	39.0568	0431	23.2137	0606	16.5075	0781	12.8014	32
29	0084	118.540	0259	38.6177	0434	23.0577	0609	16.4283	0784	12.7536	31
30	0087	114.589	0262	38.1885	0437	22.9038	0612	16.3499	0787	12.7063	30
31	0090	110.892	0265	37.7686	0440	22.7519	0615	16.2722	0790	12.6591	29
32	0093	107.426	0268	37.3579	0442	22.6020	0617	16.1952	0793	12.6124	28
33	0096	104.171	0271	36.9560	0445	22.4541	0620	16.1190	0796	12.5660	27
34	0099	101.107	0274	36.5627	0448	22.3081	0623	16.0435	0799	12.5199	26
35	0102	98.2179	0276	36.1776	0451	22.1640	0626	15.9687	0802	12.4743	25
36	0105	95.4895	0279	35.8006	0454	22.0217	0629	15.8945	0805	12.4288	24
37	0108	92.9085	0282	35.4313	0457	21.8813	0632	15.8211	0808	12.3838	23
38	0111	90.4633	0285	35.0695	0460	21.7426	0635	15.7483	0810	12.3390	22
39	0113	88.1436	0288	34.7151	0463	21.6056	0638	15.6762	0813	12.2946	21
40	0116	85.9396	0291	34.3678	0466	21.4704	0641	15.6048	0816	12.2505	20
41	0119	83.8435	0294	34.0273	0469	21.3369	0644	15.5340	0819	12.2067	19
42	0122	81.8470	0297	33.6935	0472	21.2049	0647	15.4638	0822	12.1632	18
43	0125	79.9434	0300	33.3662	0475	21.0747	0650	15.3943	0825	12.1201	17
44	0128	78.1263	0303	33.0452	0477	20.9460	0653	15.3254	0828	12.0772	16
45	0131	76.3900	0306	32.7303	0480	20.8188	0656	15.2571	0831	12.0346	15
46	0134	74.7292	0308	32.4213	0483	20.6932	0658	15.1893	0834	11.9923	14
47	0137	73.1390	0311	32.1181	0486	20.5691	0661	15.1222	0837	11.9504	13
48	0140	71.6151	0314	31.8205	0489	20.4465	0664	15.0557	0840	11.9087	12
49	0143	70.1533	0317	31.5284	0492	20.3253	0667	14.9898	0843	11.8673	11
50	0146	68.7501	0320	31.2416	0495	20.2056	0670	14.9244	0846	11.8262	10
51	0148	67.4019	0323	30.9599	0498	20.0872	0673	14.8596	0849	11.7853	9
52	0151	66.1055	0326	30.6833	0501	19.9702	0676	14.7954	0851	11.7448	8
53	0154	64.8580	0329	30.4116	0504	19.8546	0679	14.7317	0854	11.7045	7
54	0157	63.6567	0332	30.1446	0507	19.7403	0682	14.6685	0857	11.6645	6
55	0160	62.4992	0335	29.8823	0509	19.6273	0685	14.6059	0860	11.6248	5
56	0163	61.3829	0338	29.6245	0512	19.5156	0688	14.5438	0863	11.5853	4
57	0166	60.3058	0340	29.3711	0515	19.4051	0690	14.4823	0866	11.5461	3
58	0169	59.2659	0343	29.1220	0518	19.2959	0693	14.4212	0869	11.5072	2
59	0172	58.2612	0346	28.8771	0521	19.1879	0696	14.3607	0872	11.4685	1
60	0175	57.2900	0349	28.6363	0524	19.0811	0699	14.3007	0875	11.4301	0
'	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	'



	5°		6°		7°		8°		9°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	0075	11.4301	1081	9.5144	1233	8.1443	1405	7.1154	1584	6.3133	60
1	0878	11.3919	1084	9.4878	1231	8.1248	1408	7.1004	1587	6.3019	59
2	0881	11.3540	1087	9.4614	1234	8.1054	1411	7.0855	1590	6.2901	58
3	0884	11.3163	1090	9.4352	1237	8.0860	1414	7.0706	1593	6.2783	57
4	0887	11.2789	1093	9.4090	1240	8.0667	1417	7.0558	1596	6.2666	56
5	0890	11.2417	1096	9.3831	1243	8.0476	1420	7.0410	1599	6.2549	55
6	0892	11.2048	1099	9.3572	1246	8.0285	1423	7.0264	1602	6.2432	54
7	0895	11.1681	1072	9.3315	1249	8.0095	1426	7.0117	1605	6.2316	53
8	0898	11.1316	1075	9.3060	1251	7.9906	1429	6.9972	1608	6.2200	52
9	0901	11.0954	1078	9.2806	1254	7.9718	1432	6.9827	1611	6.2085	51
10	0904	11.0594	1080	9.2553	1257	7.9530	1435	6.9683	1614	6.1970	50
11	0907	11.0237	1083	9.2302	1260	7.9344	1438	6.9538	1617	6.1856	49
12	0910	10.9882	1086	9.2052	1263	7.9158	1441	6.9395	1620	6.1742	48
13	0913	10.9529	1089	9.1803	1266	7.8973	1444	6.9252	1623	6.1628	47
14	0916	10.9178	1092	9.1555	1269	7.8789	1447	6.9110	1626	6.1515	46
15	0919	10.8829	1095	9.1309	1272	7.8606	1450	6.8969	1629	6.1402	45
16	0922	10.8483	1098	9.1065	1275	7.8424	1453	6.8828	1632	6.1290	44
17	0925	10.8139	1101	9.0821	1278	7.8243	1456	6.8687	1635	6.1178	43
18	0928	10.7797	1104	9.0579	1281	7.8062	1459	6.8548	1638	6.1066	42
19	0931	10.7457	1107	9.0338	1284	7.7883	1462	6.8408	1641	6.0955	41
20	0934	10.7119	1110	9.0098	1287	7.7704	1465	6.8269	1644	6.0844	40
21	0936	10.6783	1113	8.9860	1290	7.7525	1468	6.8131	1647	6.0734	39
22	0939	10.6450	1116	8.9623	1293	7.7348	1471	6.7994	1650	6.0624	38
23	0942	10.6118	1119	8.9387	1296	7.7171	1474	6.7856	1653	6.0514	37
24	0945	10.5789	1122	8.9152	1299	7.6996	1477	6.7720	1656	6.0405	36
25	0948	10.5462	1125	8.8919	1302	7.6821	1480	6.7584	1659	6.0296	35
26	0951	10.5136	1128	8.8686	1305	7.6647	1483	6.7448	1661	6.0188	34
27	0954	10.4813	1131	8.8455	1308	7.6473	1486	6.7313	1664	6.0080	33
28	0957	10.4491	1134	8.8225	1311	7.6301	1489	6.7179	1667	5.9972	32
29	0960	10.4172	1136	8.7996	1314	7.6129	1492	6.7045	1670	5.9865	31
30	0963	10.3854	1139	8.7769	1317	7.5958	1495	6.6912	1673	5.9758	30
31	0966	10.3538	1142	8.7542	1319	7.5787	1497	6.6779	1676	5.9651	29
32	0969	10.3224	1145	8.7317	1322	7.5618	1500	6.6646	1679	5.9545	28
33	0972	10.2913	1148	8.7093	1325	7.5449	1503	6.6514	1682	5.9439	27
34	0975	10.2602	1151	8.6870	1328	7.5281	1506	6.6383	1685	5.9333	26
35	0978	10.2294	1154	8.6648	1331	7.5113	1509	6.6253	1688	5.9228	25
36	0981	10.1988	1157	8.6427	1334	7.4947	1512	6.6122	1691	5.9124	24
37	0983	10.1683	1160	8.6208	1337	7.4781	1515	6.5992	1694	5.9019	23
38	0986	10.1381	1163	8.5989	1340	7.4615	1518	6.5863	1697	5.8915	22
39	0989	10.1080	1166	8.5772	1343	7.4451	1521	6.5734	1700	5.8811	21
40	0992	10.0780	1169	8.5558	1346	7.4287	1524	6.5606	1703	5.8708	20
41	0995	10.0483	1172	8.5340	1349	7.4124	1527	6.5478	1706	5.8605	19
42	0998	10.0187	1175	8.5126	1352	7.3962	1530	6.5350	1709	5.8502	18
43	1001	9.9893	1178	8.4913	1355	7.3800	1533	6.5223	1712	5.8400	17
44	1004	9.9601	1181	8.4701	1358	7.3639	1536	6.5097	1715	5.8298	16
45	1007	9.9310	1184	8.4490	1361	7.3479	1539	6.4971	1718	5.8197	15
46	1010	9.9021	1187	8.4280	1364	7.3319	1542	6.4846	1721	5.8095	14
47	1013	9.8734	1189	8.4071	1367	7.3160	1545	6.4721	1724	5.7994	13
48	1016	9.8448	1192	8.3863	1370	7.3002	1548	6.4596	1727	5.7894	12
49	1019	9.8164	1195	8.3656	1373	7.2844	1551	6.4472	1730	5.7794	11
50	1022	9.7882	1198	8.3450	1376	7.2687	1554	6.4348	1733	5.7694	10
51	1025	9.7601	1201	8.3245	1379	7.2531	1557	6.4225	1736	5.7594	9
52	1028	9.7322	1204	8.3041	1382	7.2375	1560	6.4103	1739	5.7495	8
53	1030	9.7044	1207	8.2838	1385	7.2220	1563	6.3980	1742	5.7396	7
54	1033	9.6768	1210	8.2636	1388	7.2066	1566	6.3859	1745	5.7297	6
55	1036	9.6499	1213	8.2434	1391	7.1913	1569	6.3737	1748	5.7199	5
56	1039	9.6220	1216	8.2234	1394	7.1759	1572	6.3617	1751	5.7101	4
57	1042	9.5949	1219	8.2035	1397	7.1607	1575	6.3496	1754	5.7004	3
58	1045	9.5679	1222	8.1837	1399	7.1455	1578	6.3376	1757	5.6906	2
59	1048	9.5411	1225	8.1640	1402	7.1304	1581	6.3257	1760	5.6809	1
60	1051	9.5144	1228	8.1443	1405	7.1154	1584	6.3138	1763	5.6713	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	84°		83°		82°		81°		80°		

	10°		11°		12°		13°		14°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	1763	5.6713	1944	5.1448	2126	4.7046	2309	4.3315	2493	4.0108	60
1	1766	5.6617	1947	5.1366	2129	4.6979	2312	4.3257	2496	4.0058	59
2	1769	5.6521	1950	5.1286	2132	4.6912	2315	4.3200	2499	4.0009	58
3	1772	5.6425	1953	5.1207	2135	4.6845	2318	4.3143	2503	3.9959	57
4	1775	5.6330	1956	5.1128	2138	4.6779	2321	4.3086	2506	3.9910	56
5	1778	5.6234	1959	5.1049	2141	4.6713	2324	4.3029	2509	3.9861	55
6	1781	5.6140	1962	5.0970	2144	4.6646	2327	4.2972	2512	3.9812	54
7	1784	5.6045	1965	5.0892	2147	4.6580	2330	4.2916	2515	3.9763	53
8	1787	5.5951	1968	5.0814	2150	4.6514	2333	4.2859	2518	3.9714	52
9	1790	5.5857	1971	5.0736	2153	4.6448	2336	4.2803	2521	3.9665	51
10	1793	5.5764	1974	5.0658	2156	4.6382	2339	4.2747	2524	3.9617	50
11	1796	5.5671	1977	5.0581	2159	4.6317	2342	4.2691	2527	3.9568	49
12	1799	5.5578	1980	5.0504	2162	4.6252	2345	4.2635	2530	3.9520	48
13	1802	5.5485	1983	5.0427	2165	4.6187	2349	4.2580	2533	3.9471	47
14	1805	5.5393	1986	5.0350	2168	4.6122	2352	4.2524	2537	3.9423	46
15	1808	5.5301	1989	5.0273	2171	4.6057	2355	4.2468	2540	3.9375	45
16	1811	5.5209	1992	5.0197	2174	4.5993	2358	4.2413	2543	3.9327	44
17	1814	5.5118	1995	5.0121	2177	4.5928	2361	4.2358	2546	3.9279	43
18	1817	5.5026	1998	5.0045	2180	4.5864	2364	4.2303	2549	3.9232	42
19	1820	5.4936	2001	4.9969	2183	4.5800	2367	4.2248	2552	3.9184	41
20	1823	5.4845	2004	4.9894	2186	4.5736	2370	4.2193	2555	3.9136	40
21	1826	5.4755	2007	4.9819	2189	4.5673	2373	4.2139	2558	3.9089	39
22	1829	5.4665	2010	4.9744	2193	4.5609	2376	4.2084	2561	3.9042	38
23	1832	5.4575	2013	4.9669	2196	4.5546	2379	4.2030	2564	3.8995	37
24	1835	5.4486	2016	4.9594	2199	4.5483	2382	4.1976	2568	3.8947	36
25	1838	5.4397	2019	4.9520	2202	4.5420	2385	4.1922	2571	3.8900	35
26	1841	5.4308	2022	4.9446	2205	4.5357	2388	4.1868	2574	3.8854	34
27	1844	5.4219	2025	4.9372	2208	4.5294	2392	4.1814	2577	3.8807	33
28	1847	5.4131	2028	4.9298	2211	4.5232	2395	4.1760	2580	3.8760	32
29	1850	5.4043	2031	4.9225	2214	4.5169	2398	4.1706	2583	3.8714	31
30	1853	5.3955	2035	4.9152	2217	4.5107	2401	4.1653	2586	3.8667	30
31	1856	5.3868	2038	4.9078	2220	4.5045	2404	4.1600	2589	3.8621	29
32	1859	5.3781	2041	4.9006	2223	4.4983	2407	4.1547	2592	3.8575	28
33	1862	5.3694	2044	4.8933	2226	4.4922	2410	4.1493	2595	3.8528	27
34	1865	5.3607	2047	4.8860	2229	4.4860	2413	4.1441	2599	3.8482	26
35	1868	5.3521	2050	4.8788	2232	4.4799	2416	4.1388	2602	3.8436	25
36	1871	5.3435	2053	4.8716	2235	4.4737	2419	4.1335	2605	3.8391	24
37	1874	5.3349	2056	4.8644	2238	4.4676	2422	4.1282	2608	3.8345	23
38	1877	5.3263	2059	4.8573	2241	4.4615	2425	4.1230	2611	3.8299	22
39	1880	5.3178	2062	4.8501	2244	4.4555	2428	4.1178	2614	3.8254	21
40	1883	5.3093	2065	4.8430	2247	4.4494	2432	4.1126	2617	3.8208	20
41	1887	5.3008	2068	4.8359	2251	4.4434	2435	4.1074	2620	3.8163	19
42	1890	5.2924	2071	4.8288	2254	4.4374	2438	4.1022	2623	3.8118	18
43	1893	5.2839	2074	4.8218	2257	4.4313	2441	4.0970	2627	3.8073	17
44	1896	5.2755	2077	4.8147	2260	4.4253	2444	4.0918	2630	3.8028	16
45	1899	5.2672	2080	4.8077	2263	4.4194	2447	4.0867	2633	3.7983	15
46	1902	5.2588	2083	4.8007	2266	4.4134	2450	4.0815	2636	3.7938	14
47	1905	5.2505	2086	4.7937	2269	4.4075	2453	4.0764	2639	3.7893	13
48	1908	5.2422	2089	4.7867	2272	4.4015	2456	4.0713	2642	3.7848	12
49	1911	5.2339	2092	4.7798	2275	4.3956	2459	4.0662	2645	3.7804	11
50	1914	5.2257	2095	4.7729	2278	4.3897	2462	4.0611	2648	3.7760	10
51	1917	5.2174	2098	4.7659	2281	4.3838	2465	4.0560	2651	3.7715	9
52	1920	5.2092	2101	4.7591	2284	4.3779	2469	4.0509	2655	3.7671	8
53	1923	5.2011	2104	4.7522	2287	4.3721	2472	4.0459	2658	3.7627	7
54	1926	5.1929	2107	4.7453	2290	4.3662	2475	4.0408	2661	3.7583	6
55	1929	5.1848	2110	4.7385	2293	4.3604	2478	4.0358	2664	3.7539	5
56	1932	5.1767	2113	4.7317	2296	4.3546	2481	4.0308	2667	3.7495	4
57	1935	5.1686	2116	4.7249	2299	4.3488	2484	4.0257	2670	3.7451	3
58	1938	5.1606	2119	4.7181	2303	4.3430	2487	4.0207	2673	3.7408	2
59	1941	5.1526	2123	4.7114	2306	4.3372	2490	4.0158	2676	3.7364	1
60	1944	5.1446	2126	4.7046	2309	4.3315	2493	4.0108	2679	3.7321	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	79°		78°		77°		76°		75°		

	15°		16°		17°		18°		19°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	2679	3.7321	2667	3.4874	2657	3.2709	2649	3.0777	2643	2.9042	60
1	2683	3.7277	2871	3.4836	3060	3.2675	3252	3.0746	3447	2.9015	59
2	2686	3.7234	2874	3.4798	3064	3.2641	3256	3.0716	3450	2.8987	58
3	2689	3.7191	2877	3.4760	3067	3.2607	3259	3.0686	3453	2.8960	57
4	2692	3.7148	2880	3.4722	3070	3.2573	3262	3.0655	3456	2.8933	56
5	2695	3.7105	2883	3.4684	3073	3.2539	3265	3.0625	3460	2.8905	55
6	2698	3.7062	2886	3.4646	3076	3.2506	3269	3.0595	3463	2.8878	54
7	2701	3.7019	2890	3.4608	3080	3.2472	3272	3.0565	3466	2.8851	53
8	2704	3.6976	2893	3.4570	3083	3.2438	3275	3.0535	3469	2.8824	52
9	2708	3.6933	2896	3.4533	3086	3.2405	3278	3.0505	3473	2.8797	51
10	2711	3.6891	2899	3.4495	3089	3.2371	3281	3.0475	3476	2.8770	50
11	2714	3.6848	2902	3.4458	3092	3.2338	3285	3.0445	3479	2.8743	49
12	2717	3.6806	2905	3.4420	3096	3.2305	3288	3.0415	3482	2.8716	48
13	2720	3.6764	2908	3.4383	3099	3.2272	3291	3.0385	3486	2.8689	47
14	2723	3.6722	2912	3.4346	3102	3.2238	3294	3.0356	3489	2.8662	46
15	2726	3.6680	2915	3.4308	3105	3.2205	3298	3.0326	3492	2.8636	45
16	2729	3.6638	2918	3.4271	3108	3.2172	3301	3.0296	3495	2.8609	44
17	2733	3.6596	2921	3.4234	3111	3.2139	3304	3.0267	3499	2.8582	43
18	2736	3.6554	2924	3.4197	3115	3.2106	3307	3.0237	3502	2.8556	42
19	2739	3.6512	2927	3.4160	3118	3.2073	3310	3.0208	3505	2.8529	41
20	2742	3.6470	2931	3.4124	3121	3.2041	3314	3.0178	3508	2.8502	40
21	2745	3.6429	2934	3.4087	3124	3.2008	3317	3.0149	3512	2.8476	39
22	2748	3.6387	2937	3.4050	3127	3.1975	3320	3.0120	3515	2.8449	38
23	2751	3.6346	2940	3.4014	3131	3.1943	3323	3.0090	3518	2.8423	37
24	2754	3.6305	2943	3.3977	3134	3.1910	3327	3.0061	3522	2.8397	36
25	2758	3.6264	2946	3.3941	3137	3.1878	3330	3.0032	3525	2.8370	35
26	2761	3.6222	2949	3.3904	3140	3.1845	3333	3.0003	3528	2.8344	34
27	2764	3.6181	2953	3.3868	3143	3.1813	3336	2.9974	3531	2.8318	33
28	2767	3.6140	2956	3.3832	3147	3.1780	3339	2.9945	3535	2.8291	32
29	2770	3.6100	2959	3.3796	3150	3.1748	3343	2.9916	3538	2.8265	31
30	2773	3.6059	2962	3.3759	3153	3.1716	3346	2.9887	3541	2.8239	30
31	2776	3.6018	2965	3.3723	3156	3.1684	3349	2.9858	3544	2.8213	29
32	2780	3.5978	2968	3.3687	3159	3.1652	3352	2.9829	3548	2.8187	28
33	2783	3.5937	2972	3.3652	3163	3.1620	3356	2.9800	3551	2.8161	27
34	2786	3.5897	2975	3.3616	3166	3.1588	3359	2.9772	3554	2.8135	26
35	2789	3.5856	2978	3.3580	3169	3.1556	3362	2.9743	3558	2.8109	25
36	2792	3.5816	2981	3.3544	3172	3.1524	3365	2.9714	3561	2.8083	24
37	2795	3.5776	2984	3.3509	3175	3.1492	3369	2.9686	3564	2.8057	23
38	2798	3.5736	2987	3.3473	3179	3.1460	3372	2.9657	3567	2.8032	22
39	2801	3.5696	2991	3.3438	3182	3.1429	3375	2.9629	3571	2.8006	21
40	2805	3.5656	2994	3.3402	3185	3.1397	3378	2.9600	3574	2.7980	20
41	2808	3.5616	2997	3.3367	3188	3.1366	3382	2.9572	3577	2.7955	19
42	2811	3.5576	3000	3.3332	3191	3.1334	3385	2.9544	3581	2.7929	18
43	2814	3.5536	3003	3.3297	3195	3.1303	3388	2.9515	3584	2.7903	17
44	2817	3.5497	3006	3.3261	3198	3.1271	3391	2.9487	3587	2.7878	16
45	2820	3.5457	3010	3.3226	3201	3.1240	3395	2.9459	3590	2.7852	15
46	2823	3.5418	3013	3.3191	3204	3.1209	3398	2.9431	3594	2.7827	14
47	2827	3.5379	3016	3.3156	3207	3.1178	3401	2.9403	3597	2.7801	13
48	2830	3.5339	3019	3.3122	3211	3.1146	3404	2.9375	3600	2.7776	12
49	2833	3.5300	3022	3.3087	3214	3.1115	3408	2.9347	3604	2.7751	11
50	2836	3.5261	3026	3.3052	3217	3.1084	3411	2.9319	3607	2.7725	10
51	2839	3.5222	3029	3.3017	3220	3.1053	3414	2.9291	3610	2.7700	9
52	2842	3.5183	3032	3.2983	3223	3.1022	3417	2.9263	3613	2.7675	8
53	2845	3.5144	3035	3.2948	3227	3.0991	3421	2.9235	3617	2.7650	7
54	2849	3.5105	3038	3.2914	3230	3.0961	3424	2.9208	3620	2.7625	6
55	2852	3.5067	3041	3.2880	3233	3.0930	3427	2.9180	3623	2.7600	5
56	2855	3.5028	3045	3.2845	3236	3.0899	3430	2.9152	3627	2.7575	4
57	2858	3.4989	3048	3.2811	3240	3.0868	3434	2.9125	3630	2.7550	3
58	2861	3.4951	3051	3.2777	3243	3.0838	3437	2.9097	3633	2.7525	2
59	2864	3.4912	3054	3.2743	3246	3.0807	3440	2.9070	3636	2.7500	1
60	2867	3.4874	3057	3.2709	3249	3.0777	3443	2.9042	3640	2.7475	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	74°		73°		72°		71°		70°		

# NATURAL TANGENTS AND COTANGENTS

	20°		21°		22°		23°		24°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	3640	2.7475	3839	2.6081	4040	2.4751	4248	2.3559	4462	2.2460	50
1	3643	2.7450	3842	2.6028	4044	2.4730	4248	2.3539	4460	2.2443	51
2	3646	2.7425	3845	2.6006	4047	2.4709	4252	2.3520	4459	2.2425	52
3	3650	2.7400	3849	2.5983	4050	2.4689	4255	2.3501	4463	2.2408	53
4	3653	2.7376	3852	2.5961	4054	2.4668	4258	2.3483	4466	2.2390	54
5	3656	2.7351	3855	2.5938	4057	2.4648	4262	2.3464	4470	2.2373	55
6	3659	2.7326	3859	2.5916	4061	2.4627	4265	2.3445	4473	2.2355	56
7	3663	2.7302	3862	2.5893	4064	2.4606	4269	2.3426	4477	2.2338	57
8	3666	2.7277	3865	2.5871	4067	2.4586	4272	2.3407	4480	2.2320	58
9	3669	2.7253	3869	2.5848	4071	2.4566	4276	2.3388	4484	2.2303	59
10	3673	2.7228	3873	2.5826	4074	2.4545	4279	2.3369	4487	2.2286	60
11	3676	2.7204	3875	2.5804	4078	2.4525	4283	2.3351	4491	2.2268	49
12	3679	2.7179	3879	2.5782	4081	2.4504	4286	2.3332	4494	2.2251	48
13	3683	2.7155	3882	2.5759	4084	2.4484	4289	2.3313	4498	2.2234	47
14	3686	2.7130	3885	2.5737	4088	2.4464	4293	2.3294	4501	2.2216	46
15	3689	2.7106	3889	2.5715	4091	2.4443	4296	2.3276	4506	2.2199	45
16	3693	2.7082	3892	2.5693	4095	2.4423	4300	2.3257	4508	2.2182	44
17	3696	2.7058	3895	2.5671	4098	2.4403	4303	2.3238	4512	2.2165	43
18	3699	2.7034	3899	2.5649	4101	2.4383	4307	2.3220	4515	2.2148	42
19	3702	2.7009	3902	2.5627	4105	2.4362	4310	2.3201	4519	2.2130	41
20	3706	2.6985	3906	2.5605	4108	2.4342	4314	2.3183	4523	2.2113	40
21	3709	2.6961	3909	2.5583	4111	2.4322	4317	2.3164	4526	2.2096	39
22	3712	2.6937	3912	2.5561	4115	2.4302	4320	2.3146	4529	2.2079	38
23	3716	2.6913	3916	2.5539	4118	2.4282	4324	2.3127	4533	2.2062	37
24	3719	2.6889	3919	2.5517	4122	2.4262	4327	2.3109	4536	2.2045	36
25	3722	2.6865	3922	2.5495	4125	2.4242	4331	2.3090	4540	2.2028	35
26	3726	2.6841	3926	2.5473	4129	2.4222	4334	2.3072	4543	2.2011	34
27	3729	2.6818	3929	2.5452	4132	2.4202	4338	2.3053	4547	2.1994	33
28	3732	2.6794	3932	2.5430	4135	2.4182	4341	2.3035	4550	2.1977	32
29	3736	2.6770	3936	2.5408	4139	2.4162	4345	2.3017	4554	2.1960	31
30	3739	2.6746	3939	2.5386	4142	2.4142	4348	2.3000	4557	2.1943	30
31	3742	2.6723	3942	2.5365	4146	2.4122	4352	2.2980	4561	2.1926	29
32	3745	2.6699	3946	2.5343	4149	2.4102	4355	2.2962	4564	2.1909	28
33	3749	2.6675	3949	2.5322	4152	2.4083	4359	2.2944	4568	2.1892	27
34	3752	2.6652	3953	2.5300	4156	2.4063	4362	2.2925	4571	2.1876	26
35	3755	2.6628	3956	2.5279	4159	2.4043	4365	2.2907	4575	2.1859	25
36	3759	2.6605	3959	2.5257	4163	2.4023	4369	2.2889	4578	2.1842	24
37	3762	2.6581	3963	2.5236	4166	2.4004	4372	2.2871	4582	2.1825	23
38	3765	2.6558	3966	2.5214	4169	2.3984	4376	2.2853	4585	2.1808	22
39	3769	2.6534	3969	2.5193	4173	2.3964	4379	2.2835	4589	2.1792	21
40	3772	2.6511	3973	2.5172	4176	2.3945	4383	2.2817	4592	2.1775	20
41	3775	2.6488	3976	2.5150	4180	2.3925	4386	2.2799	4596	2.1758	19
42	3779	2.6464	3979	2.5129	4183	2.3906	4390	2.2781	4599	2.1742	18
43	3782	2.6441	3983	2.5108	4187	2.3886	4393	2.2763	4603	2.1725	17
44	3785	2.6418	3986	2.5086	4190	2.3867	4397	2.2745	4607	2.1708	16
45	3789	2.6395	3990	2.5065	4193	2.3847	4400	2.2727	4610	2.1692	15
46	3792	2.6371	3993	2.5044	4197	2.3828	4404	2.2709	4614	2.1675	14
47	3795	2.6348	3996	2.5023	4200	2.3808	4407	2.2691	4617	2.1659	13
48	3799	2.6325	4000	2.5002	4204	2.3789	4411	2.2673	4621	2.1642	12
49	3802	2.6302	4003	2.4981	4207	2.3770	4414	2.2655	4624	2.1625	11
50	3805	2.6279	4006	2.4960	4210	2.3750	4417	2.2637	4628	2.1609	10
51	3809	2.6256	4010	2.4939	4214	2.3731	4421	2.2620	4631	2.1592	9
52	3812	2.6233	4013	2.4918	4217	2.3712	4424	2.2602	4635	2.1576	8
53	3815	2.6210	4017	2.4897	4221	2.3693	4428	2.2584	4638	2.1560	7
54	3819	2.6187	4020	2.4876	4224	2.3673	4431	2.2566	4642	2.1543	6
55	3822	2.6165	4023	2.4855	4228	2.3654	4435	2.2549	4645	2.1527	5
56	3825	2.6142	4027	2.4834	4231	2.3635	4438	2.2531	4649	2.1510	4
57	3829	2.6119	4030	2.4813	4234	2.3616	4442	2.2513	4652	2.1494	3
58	3832	2.6096	4033	2.4792	4238	2.3597	4445	2.2496	4656	2.1478	2
59	3835	2.6074	4037	2.4772	4241	2.3578	4449	2.2478	4660	2.1461	1
60	3839	2.6051	4040	2.4751	4245	2.3559	4452	2.2460	4663	2.1445	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	69°		68°		67°		66°		65°		

## NATURAL TANGENTS AND COTANGENTS

	25°		26°		27°		28°		29°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	4663	2.1445	4877	2.0503	5095	1.9626	5317	1.8807	5543	1.8040	60
1	4667	2.1429	4881	2.0488	5099	1.9612	5321	1.8794	5547	1.8028	59
2	4670	2.1413	4885	2.0473	5103	1.9598	5325	1.8781	5551	1.8016	58
3	4674	2.1396	4888	2.0458	5106	1.9584	5328	1.8768	5555	1.8003	57
4	4677	2.1380	4892	2.0443	5110	1.9570	5332	1.8755	5558	1.7991	56
5	4681	2.1364	4895	2.0428	5114	1.9556	5336	1.8741	5562	1.7979	55
6	4684	2.1348	4899	2.0413	5117	1.9542	5340	1.8728	5566	1.7966	54
7	4688	2.1332	4903	2.0398	5121	1.9528	5343	1.8715	5570	1.7954	53
8	4691	2.1315	4906	2.0383	5125	1.9514	5347	1.8702	5574	1.7942	52
9	4695	2.1299	4910	2.0368	5128	1.9500	5351	1.8689	5577	1.7930	51
10	4699	2.1283	4913	2.0353	5132	1.9486	5354	1.8676	5581	1.7917	50
11	4702	2.1267	4917	2.0338	5136	1.9472	5358	1.8663	5585	1.7905	49
12	4706	2.1251	4921	2.0323	5139	1.9458	5362	1.8650	5589	1.7893	48
13	4709	2.1235	4924	2.0308	5143	1.9444	5366	1.8637	5593	1.7881	47
14	4713	2.1219	4928	2.0293	5147	1.9430	5369	1.8624	5596	1.7868	46
15	4716	2.1203	4931	2.0278	5150	1.9416	5373	1.8611	5600	1.7856	45
16	4720	2.1187	4935	2.0263	5154	1.9402	5377	1.8598	5604	1.7844	44
17	4723	2.1171	4939	2.0248	5158	1.9388	5381	1.8585	5608	1.7832	43
18	4727	2.1155	4942	2.0233	5161	1.9375	5384	1.8572	5612	1.7820	42
19	4731	2.1139	4946	2.0219	5165	1.9361	5388	1.8559	5616	1.7808	41
20	4734	2.1123	4950	2.0204	5169	1.9347	5392	1.8546	5619	1.7796	40
21	4738	2.1107	4953	2.0189	5172	1.9333	5396	1.8533	5622	1.7783	39
22	4741	2.1092	4957	2.0174	5176	1.9319	5399	1.8520	5627	1.7771	38
23	4745	2.1076	4960	2.0160	5180	1.9306	5403	1.8507	5631	1.7759	37
24	4748	2.1060	4964	2.0145	5184	1.9292	5407	1.8495	5635	1.7747	36
25	4752	2.1044	4968	2.0130	5187	1.9278	5411	1.8482	5639	1.7735	35
26	4755	2.1028	4971	2.0115	5191	1.9265	5415	1.8469	5642	1.7723	34
27	4759	2.1013	4975	2.0101	5195	1.9251	5418	1.8456	5646	1.7711	33
28	4763	2.0997	4979	2.0086	5198	1.9237	5422	1.8443	5650	1.7699	32
29	4766	2.0981	4982	2.0072	5202	1.9223	5426	1.8430	5654	1.7687	31
30	4770	2.0965	4986	2.0057	5206	1.9210	5430	1.8418	5658	1.7675	30
31	4773	2.0950	4989	2.0042	5209	1.9196	5433	1.8405	5662	1.7663	29
32	4777	2.0934	4993	2.0028	5213	1.9183	5437	1.8392	5666	1.7651	28
33	4780	2.0918	4997	2.0013	5217	1.9169	5441	1.8379	5669	1.7639	27
34	4784	2.0903	5000	1.9999	5220	1.9155	5445	1.8367	5673	1.7627	26
35	4788	2.0887	5004	1.9984	5224	1.9142	5448	1.8354	5677	1.7615	25
36	4791	2.0872	5008	1.9970	5228	1.9128	5452	1.8341	5681	1.7603	24
37	4795	2.0856	5011	1.9955	5232	1.9115	5456	1.8329	5685	1.7591	23
38	4798	2.0840	5015	1.9941	5235	1.9101	5460	1.8316	5688	1.7579	22
39	4802	2.0825	5019	1.9926	5239	1.9088	5464	1.8303	5692	1.7567	21
40	4806	2.0809	5022	1.9912	5243	1.9074	5467	1.8291	5696	1.7556	20
41	4809	2.0794	5026	1.9897	5246	1.9061	5471	1.8278	5700	1.7544	19
42	4813	2.0778	5029	1.9883	5250	1.9047	5475	1.8265	5704	1.7532	18
43	4816	2.0763	5033	1.9868	5254	1.9034	5479	1.8253	5708	1.7520	17
44	4820	2.0748	5037	1.9854	5258	1.9020	5482	1.8240	5712	1.7508	16
45	4823	2.0733	5040	1.9840	5261	1.9007	5486	1.8228	5715	1.7496	15
46	4827	2.0717	5044	1.9825	5265	1.8993	5490	1.8215	5719	1.7485	14
47	4831	2.0701	5048	1.9811	5269	1.8980	5494	1.8202	5723	1.7473	13
48	4834	2.0686	5051	1.9797	5272	1.8967	5498	1.8190	5727	1.7461	12
49	4838	2.0671	5055	1.9782	5276	1.8953	5501	1.8177	5731	1.7449	11
50	4841	2.0655	5059	1.9768	5280	1.8940	5505	1.8165	5735	1.7437	10
51	4845	2.0640	5062	1.9754	5284	1.8927	5509	1.8152	5739	1.7426	9
52	4849	2.0625	5066	1.9740	5287	1.8913	5513	1.8140	5743	1.7414	8
53	4852	2.0609	5070	1.9725	5291	1.8900	5517	1.8127	5746	1.7402	7
54	4856	2.0594	5073	1.9711	5295	1.8887	5520	1.8115	5750	1.7391	6
55	4859	2.0579	5077	1.9697	5298	1.8873	5524	1.8103	5754	1.7379	5
56	4863	2.0564	5081	1.9683	5302	1.8860	5528	1.8090	5758	1.7367	4
57	4867	2.0549	5084	1.9669	5306	1.8847	5532	1.8078	5762	1.7355	3
58	4870	2.0533	5088	1.9654	5310	1.8834	5535	1.8065	5766	1.7344	2
59	4874	2.0518	5092	1.9640	5313	1.8820	5539	1.8053	5770	1.7332	1
60	4877	2.0503	5095	1.9626	5317	1.8807	5543	1.8040	5774	1.7321	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	64°		63°		62°		61°		60°		

	30°		31°		32°		33°		34°		
'	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	'
0	5774	1.7321	6009	1.6648	6249	1.6003	6494	1.5399	6745	1.4826	60
1	5777	1.7309	6013	1.6632	6253	1.5993	6498	1.5389	6749	1.4816	59
2	5781	1.7297	6017	1.6621	6257	1.5983	6502	1.5379	6754	1.4807	58
3	5785	1.7286	6020	1.6610	6261	1.5972	6506	1.5369	6758	1.4798	57
4	5789	1.7274	6024	1.6599	6265	1.5962	6511	1.5359	6762	1.4788	56
5	5793	1.7262	6028	1.6588	6269	1.5952	6515	1.5350	6766	1.4779	55
6	5797	1.7251	6032	1.6577	6273	1.5941	6519	1.5340	6771	1.4770	54
7	5801	1.7239	6036	1.6566	6277	1.5931	6523	1.5330	6775	1.4761	53
8	5805	1.7228	6040	1.6555	6281	1.5921	6527	1.5320	6779	1.4751	52
9	5808	1.7216	6044	1.6545	6285	1.5911	6531	1.5311	6783	1.4742	51
10	5812	1.7205	6048	1.6534	6289	1.5900	6536	1.5301	6787	1.4733	50
11	5816	1.7193	6052	1.6523	6293	1.5890	6540	1.5291	6792	1.4724	49
12	5820	1.7182	6056	1.6512	6297	1.5880	6544	1.5282	6796	1.4715	48
13	5824	1.7170	6060	1.6501	6301	1.5869	6548	1.5272	6800	1.4705	47
14	5828	1.7159	6064	1.6490	6305	1.5859	6552	1.5262	6805	1.4696	46
15	5832	1.7147	6068	1.6479	6310	1.5849	6556	1.5253	6809	1.4687	45
16	5836	1.7136	6072	1.6469	6314	1.5839	6560	1.5243	6813	1.4678	44
17	5840	1.7124	6076	1.6458	6318	1.5829	6565	1.5233	6817	1.4669	43
18	5844	1.7113	6080	1.6447	6322	1.5818	6569	1.5224	6822	1.4659	42
19	5847	1.7102	6084	1.6436	6326	1.5808	6573	1.5214	6826	1.4650	41
20	5851	1.7090	6088	1.6426	6330	1.5798	6577	1.5204	6830	1.4641	40
21	5855	1.7079	6092	1.6415	6334	1.5788	6581	1.5195	6834	1.4632	39
22	5859	1.7067	6096	1.6404	6338	1.5778	6585	1.5185	6839	1.4623	38
23	5863	1.7056	6100	1.6393	6342	1.5768	6590	1.5175	6843	1.4614	37
24	5867	1.7045	6104	1.6383	6346	1.5757	6594	1.5166	6847	1.4605	36
25	5871	1.7033	6108	1.6373	6350	1.5747	6598	1.5156	6851	1.4596	35
26	5875	1.7022	6112	1.6361	6354	1.5737	6602	1.5147	6856	1.4586	34
27	5879	1.7011	6116	1.6351	6358	1.5727	6606	1.5137	6860	1.4577	33
28	5883	1.6999	6120	1.6340	6363	1.5717	6610	1.5127	6864	1.4568	32
29	5887	1.6988	6124	1.6329	6367	1.5707	6615	1.5118	6869	1.4559	31
30	5890	1.6977	6128	1.6319	6371	1.5697	6619	1.5108	6873	1.4550	30
31	5894	1.6965	6132	1.6308	6375	1.5687	6623	1.5099	6877	1.4541	29
32	5898	1.6954	6136	1.6297	6379	1.5677	6627	1.5089	6881	1.4532	28
33	5902	1.6943	6140	1.6287	6383	1.5667	6631	1.5080	6886	1.4523	27
34	5906	1.6932	6144	1.6276	6387	1.5657	6636	1.5070	6890	1.4514	26
35	5910	1.6920	6148	1.6266	6391	1.5647	6640	1.5061	6894	1.4505	25
36	5914	1.6909	6152	1.6255	6395	1.5637	6644	1.5051	6899	1.4496	24
37	5918	1.6898	6156	1.6244	6399	1.5627	6648	1.5042	6903	1.4487	23
38	5922	1.6887	6160	1.6234	6403	1.5617	6652	1.5032	6907	1.4478	22
39	5926	1.6875	6164	1.6223	6408	1.5607	6657	1.5023	6911	1.4469	21
40	5930	1.6864	6168	1.6213	6412	1.5597	6661	1.5013	6916	1.4460	20
41	5934	1.6853	6172	1.6202	6416	1.5587	6665	1.5004	6920	1.4451	19
42	5938	1.6842	6176	1.6191	6420	1.5577	6669	1.4994	6924	1.4442	18
43	5942	1.6831	6180	1.6181	6424	1.5567	6673	1.4985	6929	1.4433	17
44	5945	1.6820	6184	1.6170	6428	1.5557	6678	1.4975	6933	1.4424	16
45	5949	1.6808	6188	1.6160	6432	1.5547	6682	1.4966	6937	1.4415	15
46	5953	1.6797	6192	1.6149	6436	1.5537	6686	1.4957	6942	1.4406	14
47	5957	1.6786	6196	1.6139	6440	1.5527	6690	1.4947	6946	1.4397	13
48	5961	1.6775	6200	1.6128	6445	1.5517	6694	1.4938	6950	1.4388	12
49	5965	1.6764	6204	1.6118	6449	1.5507	6699	1.4928	6954	1.4379	11
50	5969	1.6753	6208	1.6107	6453	1.5497	6703	1.4919	6959	1.4370	10
51	5973	1.6742	6212	1.6097	6457	1.5487	6707	1.4910	6963	1.4361	9
52	5977	1.6731	6216	1.6087	6461	1.5477	6711	1.4900	6967	1.4352	8
53	5981	1.6720	6220	1.6076	6465	1.5468	6716	1.4891	6972	1.4344	7
54	5985	1.6709	6224	1.6066	6469	1.5458	6720	1.4882	6976	1.4335	6
55	5989	1.6698	6228	1.6055	6473	1.5448	6724	1.4873	6980	1.4326	5
56	5993	1.6687	6233	1.6045	6478	1.5438	6728	1.4863	6985	1.4317	4
57	5997	1.6676	6237	1.6034	6482	1.5428	6732	1.4854	6989	1.4308	3
58	6001	1.6665	6241	1.6024	6486	1.5418	6737	1.4844	6993	1.4299	2
59	6005	1.6654	6245	1.6014	6490	1.5408	6741	1.4835	6998	1.4290	1
60	6009	1.6643	6249	1.6003	6494	1.5399	6745	1.4826	7002	1.4281	0
'	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	'

	35°		36°		37°		38°		39°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	7002	1.4331	7355	1.3764	7535	1.3370	7812	1.2799	8093	1.2349	60
1	7006	1.4273	7270	1.3755	7540	1.3262	7818	1.2792	8103	1.2342	59
2	7011	1.4264	7274	1.3747	7545	1.3254	7822	1.2784	8107	1.2334	58
3	7015	1.4255	7279	1.3739	7549	1.3246	7827	1.2776	8112	1.2327	57
4	7019	1.4246	7283	1.3730	7554	1.3238	7832	1.2769	8117	1.2320	56
5	7024	1.4237	7288	1.3722	7558	1.3230	7836	1.2761	8122	1.2312	55
6	7028	1.4229	7292	1.3713	7563	1.3222	7841	1.2753	8127	1.2305	54
7	7032	1.4220	7297	1.3705	7568	1.3214	7846	1.2746	8132	1.2298	53
8	7037	1.4211	7301	1.3697	7572	1.3206	7850	1.2738	8136	1.2290	52
9	7041	1.4202	7306	1.3688	7577	1.3198	7855	1.2731	8141	1.2283	51
10	7046	1.4193	7310	1.3680	7581	1.3190	7860	1.2723	8146	1.2276	50
11	7050	1.4185	7314	1.3672	7586	1.3182	7865	1.2715	8151	1.2268	49
12	7054	1.4176	7319	1.3663	7590	1.3175	7869	1.2708	8156	1.2261	48
13	7059	1.4167	7323	1.3655	7595	1.3167	7874	1.2700	8161	1.2254	47
14	7063	1.4158	7328	1.3647	7600	1.3159	7879	1.2693	8165	1.2247	46
15	7067	1.4150	7332	1.3638	7604	1.3151	7883	1.2686	8170	1.2239	45
16	7072	1.4141	7337	1.3630	7609	1.3143	7888	1.2677	8175	1.2232	44
17	7076	1.4132	7341	1.3622	7613	1.3135	7893	1.2670	8180	1.2225	43
18	7080	1.4124	7346	1.3613	7618	1.3127	7898	1.2662	8185	1.2218	42
19	7085	1.4115	7350	1.3605	7623	1.3119	7902	1.2655	8190	1.2210	41
20	7089	1.4106	7355	1.3597	7627	1.3111	7907	1.2647	8195	1.2203	40
21	7094	1.4097	7359	1.3588	7632	1.3103	7912	1.2640	8199	1.2196	39
22	7098	1.4089	7364	1.3580	7636	1.3095	7916	1.2632	8204	1.2189	38
23	7102	1.4080	7368	1.3572	7641	1.3087	7921	1.2624	8209	1.2181	37
24	7107	1.4071	7373	1.3564	7646	1.3079	7926	1.2617	8214	1.2174	36
25	7111	1.4063	7377	1.3555	7650	1.3072	7931	1.2609	8219	1.2167	35
26	7115	1.4054	7382	1.3547	7655	1.3064	7935	1.2602	8224	1.2160	34
27	7120	1.4045	7386	1.3539	7659	1.3056	7940	1.2594	8229	1.2153	33
28	7124	1.4037	7391	1.3531	7664	1.3048	7945	1.2587	8234	1.2145	32
29	7129	1.4028	7395	1.3522	7669	1.3040	7950	1.2579	8238	1.2138	31
30	7133	1.4019	7400	1.3514	7673	1.3032	7954	1.2572	8243	1.2131	30
31	7137	1.4011	7404	1.3506	7678	1.3024	7959	1.2564	8248	1.2124	29
32	7142	1.4002	7409	1.3498	7683	1.3017	7964	1.2557	8253	1.2117	28
33	7146	1.3994	7413	1.3490	7687	1.3009	7969	1.2549	8258	1.2109	27
34	7151	1.3985	7418	1.3481	7692	1.3001	7973	1.2542	8263	1.2102	26
35	7155	1.3976	7422	1.3473	7696	1.2993	7978	1.2534	8268	1.2095	25
36	7159	1.3968	7427	1.3465	7701	1.2985	7983	1.2527	8273	1.2088	24
37	7164	1.3959	7431	1.3457	7706	1.2977	7988	1.2519	8278	1.2081	23
38	7168	1.3951	7436	1.3449	7710	1.2970	7992	1.2512	8283	1.2074	22
39	7173	1.3942	7440	1.3440	7715	1.2962	7997	1.2504	8287	1.2066	21
40	7177	1.3934	7445	1.3432	7720	1.2954	8002	1.2497	8292	1.2059	20
41	7181	1.3925	7449	1.3424	7724	1.2946	8007	1.2489	8297	1.2052	19
42	7186	1.3916	7454	1.3416	7729	1.2938	8012	1.2482	8302	1.2045	18
43	7190	1.3908	7458	1.3408	7734	1.2931	8016	1.2475	8307	1.2038	17
44	7195	1.3899	7463	1.3400	7738	1.2923	8021	1.2467	8312	1.2031	16
45	7199	1.3891	7467	1.3392	7743	1.2915	8026	1.2460	8317	1.2024	15
46	7203	1.3882	7472	1.3384	7747	1.2907	8031	1.2452	8322	1.2017	14
47	7208	1.3874	7476	1.3375	7752	1.2900	8035	1.2445	8327	1.2010	13
48	7212	1.3865	7481	1.3367	7757	1.2892	8040	1.2437	8332	1.2002	12
49	7217	1.3857	7485	1.3359	7761	1.2884	8045	1.2430	8337	1.1995	11
50	7221	1.3848	7490	1.3351	7766	1.2876	8050	1.2423	8342	1.1988	10
51	7226	1.3840	7495	1.3343	7771	1.2869	8055	1.2415	8346	1.1981	9
52	7230	1.3831	7499	1.3335	7775	1.2861	8059	1.2408	8351	1.1974	8
53	7234	1.3823	7504	1.3327	7780	1.2853	8064	1.2401	8356	1.1967	7
54	7239	1.3814	7508	1.3319	7785	1.2846	8069	1.2393	8361	1.1960	6
55	7243	1.3806	7513	1.3311	7789	1.2838	8074	1.2386	8366	1.1953	5
56	7248	1.3798	7517	1.3303	7794	1.2830	8079	1.2378	8371	1.1946	4
57	7252	1.3789	7522	1.3295	7799	1.2822	8083	1.2371	8376	1.1939	3
58	7257	1.3781	7526	1.3287	7803	1.2815	8088	1.2364	8381	1.1932	2
59	7261	1.3772	7531	1.3278	7808	1.2807	8093	1.2356	8386	1.1925	1
60	7265	1.3764	7535	1.3270	7813	1.2799	8098	1.2349	8391	1.1918	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	54°		53°		52°		51°		50°		

	40°		41°		42°		43°		44°		
	tan	cot	tan	cot	tan	cot	tan	cot	tan	cot	
0	8391	1.1918	8693	1.1504	9004	1.1106	9325	1.0724	9657	1.0355	60
1	8396	1.1910	8698	1.1497	9009	1.1100	9331	1.0717	9663	1.0349	59
2	8401	1.1903	8703	1.1490	9015	1.1093	9336	1.0711	9668	1.0343	58
3	8406	1.1896	8708	1.1483	9020	1.1087	9341	1.0705	9674	1.0337	57
4	8411	1.1889	8713	1.1477	9025	1.1080	9347	1.0699	9679	1.0331	56
5	8416	1.1882	8718	1.1470	9030	1.1074	9352	1.0692	9685	1.0325	55
6	8421	1.1875	8724	1.1463	9036	1.1067	9358	1.0686	9691	1.0319	54
7	8426	1.1868	8729	1.1456	9041	1.1061	9363	1.0680	9696	1.0313	53
8	8431	1.1861	8734	1.1450	9046	1.1054	9369	1.0674	9702	1.0307	52
9	8436	1.1854	8739	1.1443	9052	1.1048	9374	1.0668	9708	1.0301	51
10	8441	1.1847	8744	1.1436	9057	1.1041	9380	1.0661	9713	1.0295	50
11	8446	1.1840	8749	1.1430	9062	1.1035	9385	1.0655	9719	1.0289	49
12	8451	1.1833	8754	1.1423	9067	1.1028	9391	1.0649	9725	1.0283	48
13	8456	1.1826	8759	1.1416	9073	1.1022	9396	1.0643	9730	1.0277	47
14	8461	1.1819	8765	1.1410	9078	1.1016	9402	1.0637	9736	1.0271	46
15	8466	1.1812	8770	1.1403	9083	1.1009	9407	1.0630	9742	1.0265	45
16	8471	1.1806	8775	1.1396	9089	1.1003	9413	1.0624	9747	1.0259	44
17	8476	1.1799	8780	1.1389	9094	1.0996	9418	1.0618	9753	1.0253	43
18	8481	1.1792	8785	1.1383	9099	1.0990	9424	1.0612	9759	1.0247	42
19	8486	1.1785	8790	1.1376	9105	1.0983	9429	1.0606	9764	1.0241	41
20	8491	1.1778	8796	1.1369	9110	1.0977	9435	1.0599	9770	1.0235	40
21	8496	1.1771	8801	1.1363	9115	1.0971	9440	1.0593	9776	1.0230	39
22	8501	1.1764	8806	1.1356	9121	1.0964	9446	1.0587	9781	1.0224	38
23	8506	1.1757	8811	1.1349	9126	1.0958	9451	1.0581	9787	1.0218	37
24	8511	1.1750	8816	1.1343	9131	1.0951	9457	1.0575	9793	1.0212	36
25	8516	1.1743	8821	1.1336	9137	1.0945	9462	1.0569	9798	1.0206	35
26	8521	1.1736	8827	1.1329	9142	1.0939	9468	1.0562	9804	1.0200	34
27	8526	1.1729	8832	1.1323	9147	1.0932	9473	1.0556	9810	1.0194	33
28	8531	1.1722	8837	1.1316	9153	1.0926	9479	1.0550	9816	1.0188	32
29	8536	1.1715	8842	1.1310	9158	1.0919	9484	1.0544	9821	1.0182	31
30	8541	1.1708	8847	1.1303	9163	1.0913	9490	1.0538	9827	1.0176	30
31	8546	1.1702	8852	1.1296	9169	1.0907	9495	1.0532	9833	1.0170	29
32	8551	1.1695	8858	1.1290	9174	1.0900	9501	1.0526	9838	1.0164	28
33	8556	1.1688	8863	1.1283	9179	1.0894	9506	1.0519	9844	1.0158	27
34	8561	1.1681	8868	1.1276	9185	1.0888	9512	1.0513	9850	1.0152	26
35	8566	1.1674	8873	1.1270	9190	1.0881	9517	1.0507	9856	1.0147	25
36	8571	1.1667	8878	1.1263	9195	1.0875	9523	1.0501	9861	1.0141	24
37	8576	1.1660	8884	1.1257	9201	1.0869	9528	1.0495	9867	1.0135	23
38	8581	1.1653	8889	1.1250	9206	1.0862	9534	1.0489	9873	1.0129	22
39	8586	1.1647	8894	1.1243	9212	1.0856	9540	1.0483	9879	1.0123	21
40	8591	1.1640	8899	1.1237	9217	1.0850	9545	1.0477	9884	1.0117	20
41	8596	1.1633	8904	1.1230	9222	1.0843	9551	1.0470	9890	1.0111	19
42	8601	1.1626	8910	1.1224	9228	1.0837	9556	1.0464	9896	1.0105	18
43	8606	1.1619	8915	1.1217	9233	1.0831	9562	1.0458	9902	1.0099	17
44	8611	1.1612	8920	1.1211	9239	1.0824	9567	1.0452	9907	1.0094	16
45	8617	1.1606	8925	1.1204	9244	1.0818	9573	1.0446	9913	1.0088	15
46	8622	1.1599	8931	1.1197	9249	1.0812	9578	1.0440	9919	1.0082	14
47	8627	1.1592	8936	1.1191	9255	1.0805	9584	1.0434	9925	1.0076	13
48	8632	1.1585	8941	1.1184	9260	1.0799	9590	1.0428	9930	1.0070	12
49	8637	1.1578	8946	1.1178	9266	1.0793	9595	1.0422	9936	1.0064	11
50	8642	1.1571	8952	1.1171	9271	1.0786	9601	1.0416	9942	1.0058	10
51	8647	1.1565	8957	1.1165	9276	1.0780	9606	1.0410	9948	1.0052	9
52	8652	1.1558	8962	1.1158	9282	1.0774	9612	1.0404	9954	1.0047	8
53	8657	1.1551	8967	1.1152	9287	1.0768	9618	1.0398	9959	1.0041	7
54	8662	1.1544	8972	1.1145	9293	1.0761	9623	1.0392	9965	1.0035	6
55	8667	1.1538	8978	1.1139	9298	1.0755	9629	1.0385	9971	1.0029	5
56	8672	1.1531	8983	1.1132	9303	1.0749	9634	1.0379	9977	1.0023	4
57	8678	1.1524	8988	1.1126	9309	1.0742	9640	1.0373	9983	1.0017	3
58	8683	1.1517	8994	1.1119	9314	1.0736	9646	1.0367	9988	1.0012	2
59	8688	1.1510	8999	1.1113	9320	1.0730	9651	1.0361	9994	1.0006	1
60	8693	1.1504	9004	1.1106	9325	1.0724	9657	1.0355	1.000	1.0000	0
	cot	tan	cot	tan	cot	tan	cot	tan	cot	tan	
	49°		48°		47°		46°		45°		



	0°		1°		2°		3°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0000	Infinite	1.0000	87.2987	1.0000	28.6537	1.0014	19.1073	60
1	1.0000	3437.7468	1.0002	56.3595	1.0006	28.4170	1.0014	19.0019	59
2	1.0000	1718.8735	1.0002	55.4505	1.0006	28.1842	1.0014	18.8975	58
3	1.0000	1145.9157	1.0002	54.5705	1.0006	27.9551	1.0014	18.7944	57
4	1.0000	859.4369	1.0002	53.7179	1.0007	27.7298	1.0014	18.6923	56
5	1.0000	657.8496	1.0002	52.8916	1.0007	27.5080	1.0014	18.5914	55
6	1.0000	572.9581	1.0002	52.0903	1.0007	27.2898	1.0015	18.4915	54
7	1.0000	491.1070	1.0002	51.3129	1.0007	27.0750	1.0015	18.3927	53
8	1.0000	429.7187	1.0002	50.5584	1.0007	26.8638	1.0015	18.2950	52
9	1.0000	381.9723	1.0002	49.8258	1.0007	26.6555	1.0015	18.1983	51
10	1.0000	343.7753	1.0002	49.1141	1.0007	26.4508	1.0015	18.1026	50
11	1.0000	312.5230	1.0002	48.4224	1.0007	26.2487	1.0015	18.0079	49
12	1.0000	286.4795	1.0002	47.7500	1.0007	26.0499	1.0016	17.9142	48
13	1.0000	264.4427	1.0002	47.0960	1.0007	25.8542	1.0016	17.8215	47
14	1.0000	245.5540	1.0002	46.4596	1.0008	25.6613	1.0016	17.7298	46
15	1.0000	229.1838	1.0002	45.8403	1.0008	25.4713	1.0016	17.6399	45
16	1.0000	214.8600	1.0002	45.2372	1.0008	25.2841	1.0016	17.5490	44
17	1.0000	202.2212	1.0003	44.6498	1.0008	25.0997	1.0016	17.4600	43
18	1.0000	190.9868	1.0003	44.0775	1.0008	24.9179	1.0017	17.3720	42
19	1.0000	180.9350	1.0003	43.5916	1.0008	24.7387	1.0017	17.2848	41
20	1.0000	171.8583	1.0003	43.9787	1.0008	24.5621	1.0017	17.1984	40
21	1.0000	163.7032	1.0003	42.4452	1.0008	24.3880	1.0017	17.1130	39
22	1.0000	156.2823	1.0003	41.9277	1.0009	24.2164	1.0017	17.0283	38
23	1.0000	149.4684	1.0003	41.4227	1.0009	24.0471	1.0017	16.9446	37
24	1.0000	143.2406	1.0003	40.9296	1.0009	23.8802	1.0018	16.8616	36
25	1.0000	137.6111	1.0003	40.4483	1.0009	23.7156	1.0018	16.7794	35
26	1.0000	132.2223	1.0003	39.9780	1.0009	23.5533	1.0018	16.6981	34
27	1.0000	127.3253	1.0003	39.5186	1.0009	23.3932	1.0018	16.6175	33
28	1.0000	122.7780	1.0003	39.0696	1.0009	23.2352	1.0018	16.5377	32
29	1.0000	118.5444	1.0003	38.6307	1.0009	23.0794	1.0019	16.4587	31
30	1.0000	114.5890	1.0003	38.2016	1.0010	22.9256	1.0019	16.3804	30
31	1.0000	110.8966	1.0004	37.7819	1.0010	22.7739	1.0019	16.3029	29
32	1.0000	107.4311	1.0004	37.3713	1.0010	22.6241	1.0019	16.2261	28
33	1.0000	104.1757	1.0004	36.9695	1.0010	22.4764	1.0019	16.1500	27
34	1.0000	101.1118	1.0004	36.5763	1.0010	22.3305	1.0019	16.0746	26
35	1.0001	98.2239	1.0004	36.1914	1.0010	22.1866	1.0020	15.9999	25
36	1.0001	95.4947	1.0004	35.8145	1.0010	22.0444	1.0020	15.9260	24
37	1.0001	92.9139	1.0004	35.4454	1.0010	21.9041	1.0020	15.8527	23
38	1.0001	90.4689	1.0004	35.0838	1.0011	21.7656	1.0020	15.7801	22
39	1.0001	88.1492	1.0004	34.7295	1.0011	21.6288	1.0020	15.7081	21
40	1.0001	85.9456	1.0004	34.3823	1.0011	21.4937	1.0021	15.6368	20
41	1.0001	83.8495	1.0004	34.0420	1.0011	21.3603	1.0021	15.5661	19
42	1.0001	81.8532	1.0004	33.7083	1.0011	21.2285	1.0021	15.4961	18
43	1.0001	79.9497	1.0004	33.3812	1.0011	21.0984	1.0021	15.4267	17
44	1.0001	78.1327	1.0005	33.0603	1.0011	20.9698	1.0021	15.3579	16
45	1.0001	76.3966	1.0005	32.7455	1.0012	20.8426	1.0021	15.2898	15
46	1.0001	74.7359	1.0005	32.4367	1.0012	20.7174	1.0022	15.2222	14
47	1.0001	73.1458	1.0005	32.1337	1.0012	20.5934	1.0022	15.1553	13
48	1.0001	71.6221	1.0005	31.8362	1.0012	20.4709	1.0022	15.0889	12
49	1.0001	70.1605	1.0005	31.5442	1.0012	20.3499	1.0022	15.0231	11
50	1.0001	68.7574	1.0005	31.2576	1.0012	20.2303	1.0023	14.9579	10
51	1.0001	67.4093	1.0005	30.9761	1.0012	20.1121	1.0023	14.8932	9
52	1.0001	66.1130	1.0005	30.6996	1.0013	19.9952	1.0023	14.8291	8
53	1.0001	64.8657	1.0005	30.4280	1.0013	19.8798	1.0023	14.7656	7
54	1.0001	63.6646	1.0005	30.1612	1.0013	19.7658	1.0023	14.7026	6
55	1.0001	62.5071	1.0006	29.8990	1.0013	19.6528	1.0023	14.6401	5
56	1.0001	61.3911	1.0006	29.6414	1.0013	19.5412	1.0024	14.5782	4
57	1.0001	60.3141	1.0006	29.3881	1.0013	19.4309	1.0024	14.5168	3
58	1.0001	59.2743	1.0006	29.1392	1.0013	19.3218	1.0024	14.4559	2
59	1.0001	58.2698	1.0006	28.8944	1.0014	19.2140	1.0024	14.3955	1
60	1.0002	57.2987	1.0006	28.6537	1.0014	19.1073	1.0024	14.3356	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	89°		88°		87°		86°		

	4°		5°		6°		7°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0024	14.2356	1.0038	11.4737	1.0055	9.5668	1.0075	8.2055	60
1	1.0025	14.2762	1.0038	11.4357	1.0055	9.5404	1.0075	8.1861	59
2	1.0025	14.2173	1.0039	11.3979	1.0056	9.5141	1.0076	8.1668	58
3	1.0025	14.1589	1.0039	11.3604	1.0056	9.4880	1.0076	8.1476	57
4	1.0025	14.1010	1.0039	11.3231	1.0056	9.4620	1.0077	8.1285	56
5	1.0025	14.0436	1.0039	11.2861	1.0057	9.4362	1.0077	8.1095	55
6	1.0026	13.9865	1.0040	11.2493	1.0057	9.4105	1.0077	8.0905	54
7	1.0026	13.9300	1.0040	11.2128	1.0057	9.3850	1.0078	8.0717	53
8	1.0026	13.8739	1.0040	11.1765	1.0058	9.3596	1.0078	8.0529	52
9	1.0026	13.8183	1.0041	11.1404	1.0058	9.3343	1.0078	8.0342	51
10	1.0026	13.7631	1.0041	11.1045	1.0058	9.3092	1.0079	8.0156	50
11	1.0027	13.7084	1.0041	11.0689	1.0059	9.2842	1.0079	7.9971	49
12	1.0027	13.6541	1.0041	11.0336	1.0059	9.2593	1.0079	7.9787	48
13	1.0027	13.6002	1.0042	10.9984	1.0059	9.2346	1.0080	7.9604	47
14	1.0027	13.5468	1.0042	10.9635	1.0059	9.2100	1.0080	7.9422	46
15	1.0028	13.4937	1.0042	10.9288	1.0060	9.1855	1.0081	7.9240	45
16	1.0028	13.4411	1.0042	10.8943	1.0060	9.1612	1.0081	7.9059	44
17	1.0028	13.3889	1.0043	10.8600	1.0060	9.1370	1.0081	7.8879	43
18	1.0028	13.3371	1.0043	10.8260	1.0061	9.1129	1.0082	7.8700	42
19	1.0028	13.2857	1.0043	10.7921	1.0061	9.0890	1.0082	7.8522	41
20	1.0029	13.2347	1.0044	10.7585	1.0061	9.0652	1.0083	7.8344	40
21	1.0029	13.1841	1.0044	10.7251	1.0062	9.0415	1.0083	7.8168	39
22	1.0029	13.1339	1.0044	10.6919	1.0062	9.0179	1.0083	7.7992	38
23	1.0029	13.0804	1.0044	10.6589	1.0062	8.9944	1.0084	7.7817	37
24	1.0030	13.0246	1.0045	10.6261	1.0063	8.9711	1.0084	7.7642	36
25	1.0030	12.9688	1.0045	10.5935	1.0063	8.9479	1.0084	7.7469	35
26	1.0030	12.9368	1.0045	10.5611	1.0063	8.9248	1.0085	7.7296	34
27	1.0030	12.8884	1.0045	10.5289	1.0064	8.9019	1.0085	7.7124	33
28	1.0030	12.8404	1.0046	10.4969	1.0064	8.8790	1.0086	7.6953	32
29	1.0031	12.7928	1.0046	10.4661	1.0064	8.8563	1.0086	7.6783	31
30	1.0031	12.7456	1.0046	10.4354	1.0065	8.8337	1.0086	7.6613	30
31	1.0031	12.6986	1.0047	10.4020	1.0065	8.8112	1.0087	7.6444	29
32	1.0031	12.6520	1.0047	10.3708	1.0065	8.7888	1.0087	7.6276	28
33	1.0032	12.6057	1.0047	10.3397	1.0066	8.7665	1.0087	7.6109	27
34	1.0032	12.5598	1.0047	10.3089	1.0066	8.7444	1.0088	7.5942	26
35	1.0032	12.5142	1.0048	10.2782	1.0066	8.7223	1.0088	7.5776	25
36	1.0032	12.4690	1.0048	10.2477	1.0067	8.7004	1.0089	7.5611	24
37	1.0032	12.4241	1.0048	10.2174	1.0067	8.6786	1.0089	7.5446	23
38	1.0033	12.3795	1.0049	10.1873	1.0067	8.6569	1.0089	7.5282	22
39	1.0033	12.3352	1.0049	10.1573	1.0068	8.6353	1.0090	7.5119	21
40	1.0033	12.2912	1.0049	10.1275	1.0068	8.6138	1.0090	7.4957	20
41	1.0033	12.2476	1.0049	10.0979	1.0068	8.5924	1.0091	7.4795	19
42	1.0034	12.2043	1.0050	10.0685	1.0069	8.5711	1.0091	7.4635	18
43	1.0034	12.1613	1.0050	10.0392	1.0069	8.5500	1.0091	7.4474	17
44	1.0034	12.1185	1.0050	10.0101	1.0069	8.5289	1.0092	7.4315	16
45	1.0034	12.0761	1.0051	9.9812	1.0070	8.5079	1.0092	7.4156	15
46	1.0035	12.0340	1.0051	9.9525	1.0070	8.4871	1.0093	7.3998	14
47	1.0035	11.9921	1.0051	9.9239	1.0070	8.4663	1.0093	7.3840	13
48	1.0035	11.9506	1.0051	9.8955	1.0071	8.4457	1.0093	7.3683	12
49	1.0035	11.9093	1.0052	9.8672	1.0071	8.4251	1.0094	7.3527	11
50	1.0036	11.8684	1.0052	9.8391	1.0072	8.4047	1.0094	7.3372	10
51	1.0036	11.8277	1.0052	9.8112	1.0072	8.3843	1.0095	7.3217	9
52	1.0036	11.7873	1.0053	9.7834	1.0072	8.3641	1.0095	7.3063	8
53	1.0036	11.7471	1.0053	9.7558	1.0073	8.3439	1.0095	7.2909	7
54	1.0037	11.7073	1.0053	9.7283	1.0073	8.3238	1.0096	7.2757	6
55	1.0037	11.6677	1.0054	9.7010	1.0073	8.3039	1.0096	7.2604	5
56	1.0037	11.6284	1.0054	9.6739	1.0074	8.2840	1.0097	7.2453	4
57	1.0037	11.5893	1.0054	9.6469	1.0074	8.2642	1.0097	7.2302	3
58	1.0038	11.5505	1.0055	9.6200	1.0074	8.2446	1.0097	7.2152	2
59	1.0038	11.5120	1.0055	9.5933	1.0075	8.2250	1.0098	7.2002	1
60	1.0038	11.4737	1.0055	9.5665	1.0075	8.2055	1.0098	7.1853	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	

	8°		9°		10°		11°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0098	7.1853	1.0125	6.3925	1.0154	5.7588	1.0187	5.2408	60
1	1.0099	7.1705	1.0125	6.3807	1.0155	5.7493	1.0188	5.2330	59
2	1.0099	7.1557	1.0126	6.3691	1.0155	5.7398	1.0188	5.2252	58
3	1.0100	7.1410	1.0126	6.3574	1.0156	5.7304	1.0189	5.2174	57
4	1.0100	7.1263	1.0127	6.3458	1.0156	5.7210	1.0189	5.2097	56
5	1.0100	7.1117	1.0127	6.3343	1.0157	5.7117	1.0190	5.2019	55
6	1.0101	7.0972	1.0127	6.3228	1.0157	5.7023	1.0191	5.1942	54
7	1.0101	7.0827	1.0128	6.3113	1.0158	5.6930	1.0191	5.1865	53
8	1.0102	7.0683	1.0128	6.2999	1.0158	5.6838	1.0192	5.1789	52
9	1.0102	7.0539	1.0129	6.2885	1.0159	5.6745	1.0192	5.1712	51
10	1.0102	7.0396	1.0129	6.2772	1.0159	5.6653	1.0193	5.1636	50
11	1.0103	7.0254	1.0130	6.2659	1.0160	5.6562	1.0194	5.1560	49
12	1.0103	7.0112	1.0130	6.2546	1.0161	5.6470	1.0194	5.1484	48
13	1.0104	6.9971	1.0131	6.2434	1.0161	5.6379	1.0195	5.1409	47
14	1.0104	6.9830	1.0131	6.2323	1.0162	5.6288	1.0195	5.1333	46
15	1.0105	6.9690	1.0132	6.2211	1.0162	5.6198	1.0196	5.1258	45
16	1.0105	6.9550	1.0132	6.2100	1.0163	5.6107	1.0197	5.1183	44
17	1.0105	6.9411	1.0133	6.1990	1.0163	5.6017	1.0197	5.1109	43
18	1.0106	6.9273	1.0133	6.1880	1.0164	5.5928	1.0198	5.1034	42
19	1.0106	6.9135	1.0134	6.1770	1.0164	5.5838	1.0198	5.0960	41
20	1.0107	6.8998	1.0134	6.1661	1.0165	5.5749	1.0199	5.0886	40
21	1.0107	6.8861	1.0135	6.1552	1.0165	5.5660	1.0199	5.0813	39
22	1.0108	6.8725	1.0135	6.1443	1.0166	5.5572	1.0200	5.0739	38
23	1.0108	6.8589	1.0136	6.1335	1.0166	5.5484	1.0201	5.0666	37
24	1.0108	6.8454	1.0136	6.1227	1.0167	5.5396	1.0201	5.0593	36
25	1.0109	6.8320	1.0137	6.1120	1.0168	5.5308	1.0202	5.0520	35
26	1.0109	6.8186	1.0137	6.1013	1.0168	5.5221	1.0202	5.0447	34
27	1.0110	6.8052	1.0138	6.0906	1.0169	5.5134	1.0203	5.0375	33
28	1.0110	6.7919	1.0138	6.0800	1.0169	5.5047	1.0204	5.0302	32
29	1.0111	6.7787	1.0139	6.0694	1.0170	5.4960	1.0204	5.0230	31
30	1.0111	6.7655	1.0139	6.0589	1.0170	5.4874	1.0205	5.0158	30
31	1.0111	6.7523	1.0139	6.0483	1.0171	5.4788	1.0205	5.0087	29
32	1.0112	6.7392	1.0140	6.0379	1.0171	5.4702	1.0206	5.0015	28
33	1.0112	6.7262	1.0141	6.0274	1.0172	5.4617	1.0207	4.9944	27
34	1.0113	6.7132	1.0141	6.0170	1.0173	5.4532	1.0207	4.9873	26
35	1.0113	6.7003	1.0141	6.0067	1.0173	5.4447	1.0208	4.9803	25
36	1.0114	6.6874	1.0142	5.9963	1.0174	5.4362	1.0209	4.9732	24
37	1.0114	6.6745	1.0142	5.9860	1.0174	5.4278	1.0209	4.9662	23
38	1.0115	6.6618	1.0143	5.9758	1.0175	5.4194	1.0210	4.9591	22
39	1.0115	6.6490	1.0143	5.9655	1.0175	5.4110	1.0210	4.9521	21
40	1.0115	6.6363	1.0144	5.9554	1.0176	5.4026	1.0211	4.9452	20
41	1.0116	6.6237	1.0145	5.9452	1.0176	5.3943	1.0212	4.9382	19
42	1.0116	6.6111	1.0145	5.9351	1.0177	5.3860	1.0212	4.9313	18
43	1.0117	6.5986	1.0145	5.9250	1.0178	5.3777	1.0213	4.9244	17
44	1.0117	6.5861	1.0146	5.9150	1.0178	5.3695	1.0213	4.9175	16
45	1.0118	6.5736	1.0147	5.9049	1.0179	5.3612	1.0214	4.9106	15
46	1.0118	6.5612	1.0147	5.8950	1.0179	5.3530	1.0215	4.9037	14
47	1.0119	6.5489	1.0148	5.8850	1.0180	5.3449	1.0215	4.8969	13
48	1.0119	6.5365	1.0148	5.8751	1.0180	5.3367	1.0216	4.8901	12
49	1.0120	6.5243	1.0149	5.8652	1.0181	5.3286	1.0217	4.8833	11
50	1.0120	6.5121	1.0149	5.8554	1.0181	5.3205	1.0217	4.8765	10
51	1.0120	6.4999	1.0150	5.8456	1.0182	5.3124	1.0218	4.8697	9
52	1.0121	6.4878	1.0150	5.8358	1.0183	5.3044	1.0218	4.8630	8
53	1.0121	6.4757	1.0151	5.8261	1.0183	5.2963	1.0219	4.8563	7
54	1.0122	6.4637	1.0151	5.8163	1.0184	5.2883	1.0220	4.8496	6
55	1.0122	6.4517	1.0152	5.8067	1.0184	5.2804	1.0220	4.8429	5
56	1.0123	6.4398	1.0152	5.7970	1.0185	5.2724	1.0221	4.8362	4
57	1.0123	6.4279	1.0153	5.7874	1.0185	5.2645	1.0222	4.8296	3
58	1.0124	6.4160	1.0153	5.7778	1.0186	5.2566	1.0222	4.8229	2
59	1.0124	6.4042	1.0154	5.7683	1.0187	5.2487	1.0223	4.8163	1
60	1.0125	6.3925	1.0154	5.7588	1.0187	5.2408	1.0223	4.8097	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	81°		80°		79°		78°		

	12°		13°		14°		15°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0223	4.8097	1.0263	4.4454	1.0306	4.1236	1.0353	3.8637	60
1	1.0224	4.8032	1.0264	4.4398	1.0307	4.1287	1.0354	3.8595	59
2	1.0225	4.7966	1.0264	4.4342	1.0308	4.1239	1.0354	3.8553	58
3	1.0225	4.7901	1.0265	4.4287	1.0308	4.1191	1.0355	3.8512	57
4	1.0226	4.7835	1.0266	4.4231	1.0309	4.1144	1.0356	3.8470	56
5	1.0227	4.7771	1.0266	4.4176	1.0310	4.1096	1.0357	3.8428	55
6	1.0227	4.7706	1.0267	4.4121	1.0311	4.1048	1.0358	3.8387	54
7	1.0228	4.7641	1.0268	4.4066	1.0311	4.1001	1.0358	3.8346	53
8	1.0228	4.7577	1.0269	4.4011	1.0312	4.0954	1.0359	3.8304	52
9	1.0229	4.7512	1.0269	4.3956	1.0313	4.0906	1.0360	3.8263	51
10	1.0230	4.7448	1.0270	4.3901	1.0314	4.0859	1.0361	3.8222	50
11	1.0230	4.7384	1.0271	4.3847	1.0314	4.0812	1.0362	3.8181	49
12	1.0231	4.7320	1.0271	4.3792	1.0315	4.0765	1.0363	3.8140	48
13	1.0232	4.7257	1.0272	4.3738	1.0316	4.0718	1.0363	3.8100	47
14	1.0232	4.7194	1.0273	4.3684	1.0317	4.0672	1.0364	3.8059	46
15	1.0233	4.7130	1.0273	4.3630	1.0317	4.0625	1.0365	3.8018	45
16	1.0234	4.7067	1.0274	4.3576	1.0318	4.0579	1.0366	3.7978	44
17	1.0234	4.7004	1.0275	4.3522	1.0319	4.0532	1.0367	3.7937	43
18	1.0235	4.6942	1.0276	4.3469	1.0320	4.0486	1.0367	3.7897	42
19	1.0236	4.6879	1.0276	4.3415	1.0320	4.0440	1.0368	3.7857	41
20	1.0236	4.6817	1.0277	4.3362	1.0321	4.0394	1.0369	3.7817	40
21	1.0237	4.6755	1.0278	4.3309	1.0322	4.0348	1.0370	3.7777	39
22	1.0238	4.6692	1.0278	4.3256	1.0323	4.0302	1.0371	3.7737	38
23	1.0238	4.6631	1.0279	4.3203	1.0324	4.0256	1.0372	3.7697	37
24	1.0239	4.6569	1.0280	4.3150	1.0324	4.0211	1.0372	3.7657	36
25	1.0240	4.6507	1.0281	4.3098	1.0325	4.0165	1.0373	3.7617	35
26	1.0240	4.6446	1.0281	4.3045	1.0326	4.0120	1.0374	3.7577	34
27	1.0241	4.6385	1.0282	4.2993	1.0327	4.0075	1.0375	3.7538	33
28	1.0241	4.6324	1.0283	4.2941	1.0327	4.0029	1.0376	3.7498	32
29	1.0242	4.6263	1.0283	4.2889	1.0328	3.9984	1.0377	3.7459	31
30	1.0243	4.6202	1.0284	4.2837	1.0329	3.9939	1.0377	3.7420	30
31	1.0243	4.6142	1.0285	4.2785	1.0330	3.9894	1.0378	3.7381	29
32	1.0244	4.6081	1.0286	4.2733	1.0331	3.9850	1.0379	3.7341	28
33	1.0245	4.6021	1.0286	4.2681	1.0331	3.9805	1.0380	3.7302	27
34	1.0245	4.5961	1.0287	4.2630	1.0332	3.9760	1.0381	3.7263	26
35	1.0246	4.5901	1.0288	4.2579	1.0333	3.9716	1.0382	3.7223	25
36	1.0247	4.5841	1.0288	4.2527	1.0334	3.9672	1.0383	3.7184	24
37	1.0247	4.5782	1.0289	4.2476	1.0334	3.9627	1.0383	3.7147	23
38	1.0248	4.5722	1.0290	4.2425	1.0335	3.9583	1.0384	3.7108	22
39	1.0249	4.5663	1.0291	4.2375	1.0336	3.9539	1.0385	3.7070	21
40	1.0249	4.5604	1.0291	4.2324	1.0337	3.9495	1.0386	3.7031	20
41	1.0250	4.5545	1.0292	4.2273	1.0338	3.9451	1.0387	3.6993	19
42	1.0251	4.5486	1.0293	4.2223	1.0338	3.9408	1.0388	3.6955	18
43	1.0251	4.5428	1.0294	4.2173	1.0339	3.9364	1.0388	3.6917	17
44	1.0252	4.5369	1.0294	4.2122	1.0340	3.9320	1.0389	3.6878	16
45	1.0253	4.5311	1.0295	4.2072	1.0341	3.9277	1.0390	3.6840	15
46	1.0253	4.5253	1.0296	4.2022	1.0342	3.9234	1.0391	3.6803	14
47	1.0254	4.5195	1.0297	4.1973	1.0342	3.9190	1.0392	3.6765	13
48	1.0255	4.5137	1.0297	4.1923	1.0343	3.9147	1.0393	3.6727	12
49	1.0256	4.5079	1.0298	4.1873	1.0344	3.9104	1.0394	3.6689	11
50	1.0256	4.5022	1.0299	4.1824	1.0345	3.9061	1.0394	3.6652	10
51	1.0257	4.4964	1.0299	4.1774	1.0346	3.9018	1.0395	3.6614	9
52	1.0258	4.4907	1.0300	4.1725	1.0346	3.8976	1.0396	3.6576	8
53	1.0258	4.4850	1.0301	4.1676	1.0347	3.8933	1.0397	3.6539	7
54	1.0259	4.4793	1.0302	4.1627	1.0348	3.8890	1.0398	3.6502	6
55	1.0260	4.4736	1.0302	4.1578	1.0350	3.8848	1.0399	3.6465	5
56	1.0260	4.4679	1.0303	4.1529	1.0349	3.8806	1.0400	3.6427	4
57	1.0261	4.4623	1.0304	4.1481	1.0350	3.8763	1.0400	3.6390	3
58	1.0262	4.4566	1.0305	4.1432	1.0351	3.8721	1.0401	3.6353	2
59	1.0262	4.4510	1.0306	4.1384	1.0352	3.8679	1.0402	3.6316	1
60	1.0263	4.4454	1.0306	4.1336	1.0353	3.8637	1.0403	3.6280	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	77°		76°		75°		74°		

	16°		17°		18°		19°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0403	3.6280	1.0457	3.4203	1.0515	3.2361	1.0578	2.8716	60
1	1.0404	3.6243	1.0458	3.4171	1.0516	3.2332	1.0577	3.0690	59
2	1.0405	3.6206	1.0459	3.4138	1.0517	3.2303	1.0578	3.0664	58
3	1.0406	3.6169	1.0460	3.4106	1.0518	3.2274	1.0579	3.0638	57
4	1.0406	3.6133	1.0461	3.4073	1.0519	3.2245	1.0580	3.0612	56
5	1.0407	3.6096	1.0462	3.4041	1.0520	3.2216	1.0582	3.0586	55
6	1.0408	3.6060	1.0463	3.4009	1.0521	3.2188	1.0583	3.0561	54
7	1.0409	3.6024	1.0463	3.3977	1.0522	3.2159	1.0584	3.0535	53
8	1.0410	3.5988	1.0464	3.3945	1.0523	3.2131	1.0585	3.0509	52
9	1.0411	3.5951	1.0465	3.3913	1.0524	3.2102	1.0586	3.0484	51
10	1.0412	3.5915	1.0466	3.3881	1.0525	3.2074	1.0587	3.0458	50
11	1.0413	3.5879	1.0467	3.3849	1.0526	3.2045	1.0588	3.0433	49
12	1.0413	3.5843	1.0468	3.3817	1.0527	3.2017	1.0589	3.0407	48
13	1.0414	3.5808	1.0469	3.3785	1.0528	3.1989	1.0590	3.0382	47
14	1.0415	3.5772	1.0470	3.3754	1.0529	3.1960	1.0591	3.0357	46
15	1.0416	3.5736	1.0471	3.3722	1.0530	3.1932	1.0592	3.0331	45
16	1.0417	3.5700	1.0472	3.3691	1.0531	3.1904	1.0593	3.0306	44
17	1.0418	3.5665	1.0473	3.3659	1.0532	3.1876	1.0594	3.0281	43
18	1.0419	3.5629	1.0474	3.3628	1.0533	3.1848	1.0595	3.0256	42
19	1.0420	3.5594	1.0475	3.3596	1.0534	3.1820	1.0597	3.0231	41
20	1.0421	3.5559	1.0476	3.3565	1.0535	3.1792	1.0598	3.0206	40
21	1.0421	3.5523	1.0477	3.3534	1.0536	3.1764	1.0599	3.0181	39
22	1.0422	3.5488	1.0478	3.3502	1.0537	3.1736	1.0600	3.0156	38
23	1.0423	3.5453	1.0479	3.3471	1.0538	3.1708	1.0601	3.0131	37
24	1.0424	3.5418	1.0480	3.3440	1.0539	3.1681	1.0602	3.0106	36
25	1.0425	3.5383	1.0481	3.3409	1.0540	3.1653	1.0603	3.0081	35
26	1.0426	3.5348	1.0481	3.3378	1.0541	3.1625	1.0604	3.0056	34
27	1.0427	3.5313	1.0482	3.3347	1.0542	3.1598	1.0605	3.0031	33
28	1.0428	3.5279	1.0482	3.3317	1.0543	3.1570	1.0606	3.0007	32
29	1.0429	3.5244	1.0483	3.3286	1.0544	3.1543	1.0607	2.9982	31
30	1.0429	3.5209	1.0483	3.3255	1.0545	3.1515	1.0608	2.9957	30
31	1.0430	3.5175	1.0486	3.3224	1.0546	3.1488	1.0610	2.9933	29
32	1.0431	3.5140	1.0487	3.3194	1.0547	3.1461	1.0611	2.9908	28
33	1.0432	3.5106	1.0488	3.3163	1.0548	3.1433	1.0612	2.9884	27
34	1.0433	3.5072	1.0489	3.3133	1.0549	3.1406	1.0613	2.9859	26
35	1.0434	3.5037	1.0490	3.3102	1.0550	3.1379	1.0614	2.9835	25
36	1.0435	3.5003	1.0491	3.3072	1.0551	3.1352	1.0615	2.9811	24
37	1.0436	3.4969	1.0492	3.3042	1.0552	3.1325	1.0616	2.9786	23
38	1.0437	3.4935	1.0493	3.3012	1.0553	3.1298	1.0617	2.9762	22
39	1.0438	3.4901	1.0494	3.2981	1.0554	3.1271	1.0618	2.9738	21
40	1.0439	3.4867	1.0495	3.2951	1.0555	3.1244	1.0619	2.9713	20
41	1.0439	3.4833	1.0496	3.2921	1.0556	3.1217	1.0621	2.9689	19
42	1.0440	3.4799	1.0497	3.2891	1.0557	3.1190	1.0622	2.9665	18
43	1.0441	3.4766	1.0498	3.2861	1.0558	3.1163	1.0623	2.9641	17
44	1.0442	3.4732	1.0499	3.2831	1.0559	3.1137	1.0624	2.9617	16
45	1.0443	3.4699	1.0500	3.2801	1.0560	3.1110	1.0625	2.9593	15
46	1.0444	3.4665	1.0501	3.2772	1.0561	3.1083	1.0626	2.9569	14
47	1.0445	3.4632	1.0502	3.2742	1.0563	3.1057	1.0627	2.9545	13
48	1.0446	3.4598	1.0503	3.2712	1.0564	3.1030	1.0628	2.9521	12
49	1.0447	3.4565	1.0504	3.2683	1.0565	3.1004	1.0629	2.9497	11
50	1.0448	3.4532	1.0505	3.2653	1.0566	3.0977	1.0631	2.9474	10
51	1.0449	3.4499	1.0506	3.2624	1.0567	3.0951	1.0632	2.9450	9
52	1.0450	3.4465	1.0507	3.2594	1.0568	3.0925	1.0633	2.9426	8
53	1.0450	3.4432	1.0508	3.2565	1.0569	3.0898	1.0634	2.9403	7
54	1.0451	3.4399	1.0509	3.2535	1.0570	3.0872	1.0635	2.9379	6
55	1.0452	3.4367	1.0510	3.2506	1.0571	3.0846	1.0636	2.9355	5
56	1.0453	3.4334	1.0511	3.2477	1.0572	3.0820	1.0637	2.9332	4
57	1.0454	3.4301	1.0512	3.2448	1.0573	3.0794	1.0638	2.9308	3
58	1.0455	3.4268	1.0513	3.2419	1.0574	3.0768	1.0640	2.9285	2
59	1.0456	3.4236	1.0514	3.2390	1.0575	3.0741	1.0641	2.9261	1
60	1.0457	3.4203	1.0515	3.2361	1.0576	3.0716	1.0642	2.9238	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	73°		72°		71°		70°		

	20°		21°		22°		23°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0642	2.9238	1.0711	2.7904	1.0788	2.6698	1.0864	2.5523	60
1	1.0643	2.9215	1.0713	2.7883	1.0787	2.6675	1.0865	2.5576	59
2	1.0644	2.9191	1.0714	2.7862	1.0788	2.6656	1.0866	2.5558	58
3	1.0645	2.9168	1.0715	2.7841	1.0789	2.6637	1.0868	2.5541	57
4	1.0646	2.9145	1.0716	2.7820	1.0790	2.6618	1.0869	2.5523	56
5	1.0647	2.9122	1.0717	2.7799	1.0792	2.6599	1.0870	2.5506	55
6	1.0649	2.9099	1.0719	2.7778	1.0793	2.6580	1.0872	2.5488	54
7	1.0650	2.9075	1.0720	2.7757	1.0794	2.6561	1.0873	2.5471	53
8	1.0651	2.9052	1.0721	2.7736	1.0796	2.6542	1.0874	2.5454	52
9	1.0652	2.9029	1.0722	2.7715	1.0797	2.6523	1.0876	2.5436	51
10	1.0653	2.9006	1.0723	2.7698	1.0798	2.6504	1.0877	2.5419	50
11	1.0654	2.8983	1.0725	2.7674	1.0799	2.6485	1.0878	2.5402	49
12	1.0655	2.8960	1.0726	2.7653	1.0801	2.6466	1.0880	2.5384	48
13	1.0656	2.8938	1.0727	2.7632	1.0802	2.6447	1.0881	2.5367	47
14	1.0658	2.8915	1.0728	2.7612	1.0803	2.6428	1.0882	2.5350	46
15	1.0659	2.8892	1.0730	2.7591	1.0804	2.6410	1.0884	2.5333	45
16	1.0660	2.8869	1.0731	2.7570	1.0806	2.6391	1.0885	2.5316	44
17	1.0661	2.8846	1.0733	2.7550	1.0807	2.6372	1.0887	2.5299	43
18	1.0662	2.8824	1.0733	2.7529	1.0808	2.6353	1.0888	2.5282	42
19	1.0663	2.8801	1.0734	2.7509	1.0810	2.6335	1.0889	2.5264	41
20	1.0665	2.8779	1.0736	2.7488	1.0811	2.6316	1.0891	2.5247	40
21	1.0666	2.8756	1.0737	2.7468	1.0812	2.6298	1.0892	2.5230	39
22	1.0667	2.8733	1.0738	2.7447	1.0814	2.6279	1.0893	2.5213	38
23	1.0668	2.8711	1.0739	2.7427	1.0815	2.6260	1.0895	2.5196	37
24	1.0669	2.8688	1.0740	2.7406	1.0816	2.6242	1.0896	2.5179	36
25	1.0670	2.8666	1.0742	2.7388	1.0817	2.6223	1.0898	2.5163	35
26	1.0671	2.8644	1.0743	2.7366	1.0819	2.6205	1.0899	2.5146	34
27	1.0673	2.8621	1.0744	2.7346	1.0820	2.6188	1.0900	2.5129	33
28	1.0674	2.8599	1.0745	2.7325	1.0821	2.6168	1.0902	2.5112	32
29	1.0675	2.8577	1.0747	2.7305	1.0823	2.6150	1.0903	2.5095	31
30	1.0676	2.8554	1.0748	2.7288	1.0824	2.6131	1.0904	2.5078	30
31	1.0677	2.8532	1.0749	2.7265	1.0825	2.6113	1.0906	2.5062	29
32	1.0678	2.8510	1.0750	2.7245	1.0827	2.6095	1.0907	2.5045	28
33	1.0680	2.8488	1.0752	2.7225	1.0828	2.6076	1.0909	2.5028	27
34	1.0681	2.8466	1.0753	2.7205	1.0829	2.6058	1.0910	2.5012	26
35	1.0682	2.8444	1.0754	2.7188	1.0830	2.6040	1.0911	2.4995	25
36	1.0683	2.8422	1.0755	2.7165	1.0832	2.6022	1.0913	2.4978	24
37	1.0684	2.8400	1.0757	2.7145	1.0833	2.6003	1.0914	2.4962	23
38	1.0685	2.8378	1.0758	2.7125	1.0834	2.5985	1.0915	2.4945	22
39	1.0687	2.8356	1.0759	2.7105	1.0836	2.5967	1.0917	2.4928	21
40	1.0688	2.8334	1.0760	2.7088	1.0837	2.5949	1.0918	2.4912	20
41	1.0689	2.8312	1.0761	2.7065	1.0838	2.5931	1.0920	2.4895	19
42	1.0690	2.8291	1.0763	2.7045	1.0840	2.5913	1.0921	2.4879	18
43	1.0691	2.8269	1.0764	2.7026	1.0841	2.5895	1.0922	2.4862	17
44	1.0692	2.8247	1.0765	2.7006	1.0842	2.5877	1.0924	2.4846	16
45	1.0694	2.8225	1.0766	2.6988	1.0844	2.5859	1.0925	2.4830	15
46	1.0695	2.8204	1.0768	2.6967	1.0845	2.5841	1.0927	2.4813	14
47	1.0696	2.8182	1.0769	2.6947	1.0846	2.5823	1.0928	2.4797	13
48	1.0697	2.8161	1.0770	2.6927	1.0848	2.5805	1.0929	2.4780	12
49	1.0698	2.8139	1.0771	2.6908	1.0849	2.5788	1.0931	2.4764	11
50	1.0700	2.8117	1.0773	2.6888	1.0850	2.5770	1.0932	2.4748	10
51	1.0701	2.8096	1.0774	2.6869	1.0852	2.5752	1.0934	2.4731	9
52	1.0702	2.8075	1.0775	2.6849	1.0853	2.5734	1.0935	2.4715	8
53	1.0703	2.8053	1.0777	2.6830	1.0854	2.5716	1.0936	2.4699	7
54	1.0704	2.8032	1.0778	2.6811	1.0856	2.5699	1.0938	2.4683	6
55	1.0705	2.8010	1.0779	2.6791	1.0857	2.5681	1.0939	2.4667	5
56	1.0707	2.7989	1.0780	2.6772	1.0858	2.5663	1.0941	2.4650	4
57	1.0708	2.7968	1.0782	2.6752	1.0860	2.5646	1.0942	2.4634	3
58	1.0709	2.7947	1.0783	2.6733	1.0861	2.5628	1.0944	2.4618	2
59	1.0710	2.7925	1.0784	2.6714	1.0862	2.5611	1.0945	2.4602	1
60	1.0711	2.7904	1.0785	2.6695	1.0864	2.5593	1.0946	2.4586	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	

## NATURAL SECANTS AND CO-SECANTS

24°			25°			26°			27°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.0046	2.4586	1.1034	2.3668	1.1126	2.2513	1.1222	2.2028	1.1322	2.2028	60
1	1.0048	2.4570	1.1035	2.3647	1.1128	2.2798	1.1225	2.2014	1.1225	2.2014	59
2	1.0049	2.4554	1.1037	2.3633	1.1129	2.2785	1.1227	2.2002	1.1227	2.2002	58
3	1.0051	2.4538	1.1038	2.3618	1.1131	2.2771	1.1228	2.1989	1.1228	2.1989	57
4	1.0052	2.4522	1.1040	2.3603	1.1132	2.2757	1.1230	2.1977	1.1230	2.1977	56
5	1.0053	2.4506	1.1041	2.3588	1.1134	2.2744	1.1232	2.1964	1.1232	2.1964	55
6	1.0055	2.4490	1.1043	2.3574	1.1136	2.2730	1.1233	2.1952	1.1233	2.1952	54
7	1.0056	2.4474	1.1044	2.3559	1.1137	2.2717	1.1235	2.1939	1.1235	2.1939	53
8	1.0058	2.4458	1.1046	2.3545	1.1139	2.2703	1.1237	2.1927	1.1237	2.1927	52
9	1.0059	2.4442	1.1047	2.3530	1.1140	2.2690	1.1238	2.1914	1.1238	2.1914	51
10	1.0061	2.4426	1.1049	2.3515	1.1142	2.2677	1.1240	2.1902	1.1240	2.1902	50
11	1.0062	2.4411	1.1050	2.3501	1.1143	2.2663	1.1242	2.1890	1.1242	2.1890	49
12	1.0063	2.4395	1.1052	2.3486	1.1145	2.2650	1.1243	2.1877	1.1243	2.1877	48
13	1.0065	2.4379	1.1053	2.3472	1.1147	2.2636	1.1245	2.1865	1.1245	2.1865	47
14	1.0066	2.4363	1.1055	2.3457	1.1148	2.2623	1.1247	2.1852	1.1247	2.1852	46
15	1.0068	2.4348	1.1056	2.3443	1.1150	2.2610	1.1248	2.1840	1.1248	2.1840	45
16	1.0069	2.4332	1.1058	2.3428	1.1151	2.2596	1.1250	2.1828	1.1250	2.1828	44
17	1.0071	2.4316	1.1059	2.3414	1.1153	2.2583	1.1252	2.1815	1.1252	2.1815	43
18	1.0072	2.4300	1.1061	2.3400	1.1155	2.2570	1.1253	2.1803	1.1253	2.1803	42
19	1.0074	2.4285	1.1062	2.3385	1.1156	2.2556	1.1255	2.1791	1.1255	2.1791	41
20	1.0075	2.4269	1.1064	2.3371	1.1158	2.2543	1.1257	2.1779	1.1257	2.1779	40
21	1.0076	2.4254	1.1066	2.3356	1.1159	2.2530	1.1259	2.1766	1.1259	2.1766	39
22	1.0078	2.4238	1.1067	2.3342	1.1161	2.2517	1.1260	2.1754	1.1260	2.1754	38
23	1.0079	2.4223	1.1069	2.3328	1.1163	2.2504	1.1262	2.1742	1.1262	2.1742	37
24	1.0081	2.4207	1.1070	2.3314	1.1164	2.2490	1.1264	2.1730	1.1264	2.1730	36
25	1.0082	2.4191	1.1072	2.3299	1.1166	2.2477	1.1265	2.1717	1.1265	2.1717	35
26	1.0084	2.4176	1.1073	2.3285	1.1167	2.2464	1.1267	2.1705	1.1267	2.1705	34
27	1.0085	2.4160	1.1075	2.3271	1.1169	2.2451	1.1269	2.1693	1.1269	2.1693	33
28	1.0087	2.4145	1.1076	2.3257	1.1171	2.2438	1.1270	2.1681	1.1270	2.1681	32
29	1.0088	2.4130	1.1078	2.3242	1.1172	2.2425	1.1272	2.1669	1.1272	2.1669	31
30	1.0089	2.4114	1.1079	2.3228	1.1174	2.2413	1.1274	2.1657	1.1274	2.1657	30
31	1.0091	2.4099	1.1081	2.3214	1.1176	2.2399	1.1276	2.1645	1.1276	2.1645	29
32	1.0092	2.4083	1.1082	2.3200	1.1177	2.2385	1.1277	2.1633	1.1277	2.1633	28
33	1.0094	2.4068	1.1084	2.3186	1.1179	2.2372	1.1279	2.1621	1.1279	2.1621	27
34	1.0095	2.4053	1.1085	2.3172	1.1181	2.2359	1.1281	2.1609	1.1281	2.1609	26
35	1.0097	2.4038	1.1087	2.3158	1.1183	2.2346	1.1282	2.1596	1.1282	2.1596	25
36	1.0098	2.4022	1.1089	2.3144	1.1184	2.2333	1.1284	2.1584	1.1284	2.1584	24
37	1.1000	2.4007	1.1090	2.3130	1.1185	2.2320	1.1286	2.1572	1.1286	2.1572	23
38	1.1001	2.3992	1.1092	2.3115	1.1187	2.2308	1.1288	2.1560	1.1288	2.1560	22
39	1.1003	2.3977	1.1093	2.3101	1.1189	2.2295	1.1289	2.1548	1.1289	2.1548	21
40	1.1004	2.3961	1.1095	2.3087	1.1190	2.2282	1.1291	2.1537	1.1291	2.1537	20
41	1.1005	2.3946	1.1096	2.3074	1.1192	2.2269	1.1293	2.1525	1.1293	2.1525	19
42	1.1007	2.3931	1.1098	2.3060	1.1194	2.2256	1.1294	2.1513	1.1294	2.1513	18
43	1.1009	2.3916	1.1099	2.3046	1.1195	2.2243	1.1296	2.1501	1.1296	2.1501	17
44	1.1010	2.3901	1.1101	2.3032	1.1197	2.2230	1.1298	2.1489	1.1298	2.1489	16
45	1.1011	2.3886	1.1102	2.3018	1.1198	2.2217	1.1300	2.1477	1.1300	2.1477	15
46	1.1013	2.3871	1.1104	2.3004	1.1200	2.2205	1.1301	2.1465	1.1301	2.1465	14
47	1.1014	2.3856	1.1106	2.2990	1.1202	2.2192	1.1303	2.1453	1.1303	2.1453	13
48	1.1016	2.3841	1.1107	2.2976	1.1203	2.2179	1.1305	2.1441	1.1305	2.1441	12
49	1.1017	2.3826	1.1109	2.2962	1.1205	2.2166	1.1306	2.1430	1.1306	2.1430	11
50	1.1019	2.3811	1.1110	2.2949	1.1207	2.2153	1.1308	2.1418	1.1308	2.1418	10
51	1.1020	2.3796	1.1112	2.2935	1.1208	2.2141	1.1310	2.1406	1.1310	2.1406	9
52	1.1022	2.3781	1.1113	2.2921	1.1210	2.2128	1.1312	2.1394	1.1312	2.1394	8
53	1.1023	2.3766	1.1115	2.2907	1.1212	2.2115	1.1313	2.1382	1.1313	2.1382	7
54	1.1025	2.3751	1.1117	2.2894	1.1213	2.2103	1.1315	2.1371	1.1315	2.1371	6
55	1.1026	2.3736	1.1118	2.2880	1.1215	2.2090	1.1317	2.1359	1.1317	2.1359	5
56	1.1028	2.3721	1.1120	2.2866	1.1217	2.2077	1.1319	2.1347	1.1319	2.1347	4
57	1.1029	2.8706	1.1121	2.2853	1.1218	2.2065	1.1320	2.1336	1.1320	2.1336	3
58	1.1031	2.3692	1.1123	2.2839	1.1220	2.2052	1.1322	2.1324	1.1322	2.1324	2
59	1.1032	2.3677	1.1124	2.2825	1.1222	2.2039	1.1324	2.1312	1.1324	2.1312	1
60	1.1034	2.3662	1.1126	2.2812	1.1223	2.2026	1.1326	2.1301	1.1326	2.1301	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
65°			64°			63°			62°		

	28°		29°		30°		31°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.1326	2.1301	1.1433	2.0627	1.1547	2.0000	1.1666	1.9416	60
1	1.1327	2.1289	1.1435	2.0616	1.1549	1.9990	1.1668	1.9408	59
2	1.1329	2.1277	1.1437	2.0605	1.1551	1.9980	1.1670	1.9397	58
3	1.1331	2.1266	1.1439	2.0594	1.1553	1.9970	1.1672	1.9388	57
4	1.1333	2.1254	1.1442	2.0583	1.1555	1.9960	1.1675	1.9379	56
5	1.1334	2.1242	1.1443	2.0573	1.1557	1.9950	1.1677	1.9369	55
6	1.1336	2.1231	1.1445	2.0562	1.1559	1.9940	1.1679	1.9360	54
7	1.1338	2.1219	1.1446	2.0551	1.1561	1.9930	1.1681	1.9350	53
8	1.1340	2.1208	1.1448	2.0540	1.1563	1.9920	1.1683	1.9341	52
9	1.1342	2.1196	1.1450	2.0530	1.1565	1.9910	1.1685	1.9332	51
10	1.1343	2.1185	1.1452	2.0519	1.1566	1.9900	1.1687	1.9323	50
11	1.1345	2.1173	1.1454	2.0508	1.1568	1.9890	1.1689	1.9313	49
12	1.1347	2.1162	1.1456	2.0498	1.1570	1.9880	1.1691	1.9304	48
13	1.1349	2.1150	1.1458	2.0487	1.1572	1.9870	1.1693	1.9295	47
14	1.1350	2.1139	1.1459	2.0476	1.1574	1.9860	1.1695	1.9286	46
15	1.1352	2.1127	1.1461	2.0465	1.1576	1.9850	1.1697	1.9276	45
16	1.1354	2.1116	1.1463	2.0455	1.1578	1.9840	1.1699	1.9267	44
17	1.1356	2.1105	1.1465	2.0445	1.1580	1.9830	1.1701	1.9258	43
18	1.1357	2.1093	1.1467	2.0434	1.1582	1.9821	1.1703	1.9249	42
19	1.1359	2.1082	1.1469	2.0423	1.1584	1.9811	1.1705	1.9240	41
20	1.1361	2.1070	1.1471	2.0413	1.1586	1.9801	1.1707	1.9230	40
21	1.1363	2.1059	1.1473	2.0402	1.1588	1.9791	1.1710	1.9221	39
22	1.1365	2.1048	1.1474	2.0392	1.1590	1.9781	1.1712	1.9212	38
23	1.1366	2.1036	1.1476	2.0381	1.1592	1.9771	1.1714	1.9203	37
24	1.1368	2.1025	1.1478	2.0371	1.1594	1.9762	1.1716	1.9193	36
25	1.1370	2.1014	1.1480	2.0360	1.1596	1.9753	1.1718	1.9184	35
26	1.1372	2.1002	1.1482	2.0350	1.1598	1.9742	1.1720	1.9175	34
27	1.1374	2.0991	1.1484	2.0339	1.1600	1.9732	1.1722	1.9166	33
28	1.1376	2.0980	1.1486	2.0329	1.1602	1.9722	1.1724	1.9157	32
29	1.1377	2.0969	1.1488	2.0318	1.1604	1.9713	1.1726	1.9148	31
30	1.1379	2.0957	1.1490	2.0308	1.1606	1.9703	1.1728	1.9139	30
31	1.1381	2.0946	1.1491	2.0297	1.1608	1.9693	1.1730	1.9130	29
32	1.1383	2.0935	1.1493	2.0287	1.1610	1.9683	1.1732	1.9121	28
33	1.1384	2.0924	1.1495	2.0276	1.1612	1.9674	1.1735	1.9112	27
34	1.1386	2.0913	1.1497	2.0266	1.1614	1.9664	1.1737	1.9103	26
35	1.1388	2.0901	1.1499	2.0255	1.1616	1.9654	1.1739	1.9094	25
36	1.1390	2.0890	1.1501	2.0245	1.1618	1.9645	1.1741	1.9084	24
37	1.1392	2.0879	1.1503	2.0235	1.1620	1.9635	1.1743	1.9075	23
38	1.1393	2.0868	1.1505	2.0225	1.1622	1.9625	1.1745	1.9066	22
39	1.1395	2.0857	1.1507	2.0214	1.1624	1.9616	1.1747	1.9057	21
40	1.1397	2.0846	1.1509	2.0204	1.1626	1.9606	1.1749	1.9049	20
41	1.1399	2.0835	1.1510	2.0194	1.1628	1.9597	1.1751	1.9039	19
42	1.1401	2.0824	1.1512	2.0183	1.1630	1.9587	1.1753	1.9031	18
43	1.1402	2.0813	1.1514	2.0173	1.1632	1.9577	1.1756	1.9022	17
44	1.1404	2.0802	1.1516	2.0163	1.1634	1.9568	1.1758	1.9013	16
45	1.1406	2.0790	1.1518	2.0152	1.1636	1.9558	1.1760	1.9004	15
46	1.1408	2.0779	1.1520	2.0142	1.1638	1.9549	1.1762	1.8995	14
47	1.1410	2.0768	1.1522	2.0132	1.1640	1.9539	1.1764	1.8986	13
48	1.1412	2.0757	1.1524	2.0122	1.1642	1.9530	1.1766	1.8977	12
49	1.1413	2.0747	1.1526	2.0112	1.1644	1.9520	1.1768	1.8968	11
50	1.1415	2.0736	1.1528	2.0101	1.1646	1.9511	1.1770	1.8959	10
51	1.1417	2.0725	1.1530	2.0091	1.1648	1.9501	1.1773	1.8950	9
52	1.1419	2.0714	1.1532	2.0081	1.1650	1.9492	1.1775	1.8941	8
53	1.1421	2.0703	1.1533	2.0071	1.1652	1.9482	1.1777	1.8933	7
54	1.1423	2.0692	1.1535	2.0061	1.1654	1.9473	1.1779	1.8924	6
55	1.1424	2.0681	1.1537	2.0051	1.1656	1.9463	1.1781	1.8915	5
56	1.1426	2.0670	1.1539	2.0040	1.1658	1.9454	1.1783	1.8906	4
57	1.1428	2.0659	1.1541	2.0030	1.1660	1.9444	1.1785	1.8897	3
58	1.1430	2.0648	1.1543	2.0020	1.1662	1.9435	1.1787	1.8888	2
59	1.1432	2.0637	1.1545	2.0010	1.1664	1.9425	1.1790	1.8880	1
60	1.1434	2.0627	1.1547	2.0000	1.1666	1.9416	1.1792	1.8871	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	61°		60°		59°		58°		



	32°		33°		34°		35°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.1792	1.8571	1.1794	1.8561	1.1792	1.7883	1.2206	1.7424	60
1	1.1794	1.8562	1.1926	1.8353	1.2064	1.7875	1.2210	1.7427	59
2	1.1796	1.8553	1.1928	1.8344	1.2067	1.7868	1.2213	1.7420	58
3	1.1798	1.8544	1.1930	1.8336	1.2069	1.7860	1.2215	1.7413	57
4	1.1800	1.8536	1.1933	1.8328	1.2072	1.7852	1.2218	1.7406	56
5	1.1803	1.8527	1.1935	1.8320	1.2074	1.7844	1.2220	1.7398	55
6	1.1805	1.8518	1.1937	1.8312	1.2076	1.7837	1.2223	1.7391	54
7	1.1807	1.8509	1.1939	1.8303	1.2079	1.7829	1.2225	1.7384	53
8	1.1809	1.8501	1.1942	1.8295	1.2081	1.7821	1.2228	1.7377	52
9	1.1811	1.8492	1.1944	1.8287	1.2084	1.7814	1.2230	1.7370	51
10	1.1813	1.8483	1.1946	1.8279	1.2086	1.7806	1.2233	1.7363	50
11	1.1815	1.8475	1.1948	1.8271	1.2088	1.7799	1.2235	1.7355	49
12	1.1818	1.8466	1.1951	1.8263	1.2091	1.7791	1.2238	1.7348	48
13	1.1820	1.8457	1.1953	1.8255	1.2093	1.7783	1.2240	1.7341	47
14	1.1822	1.8449	1.1955	1.8246	1.2096	1.7776	1.2243	1.7334	46
15	1.1824	1.8440	1.1958	1.8238	1.2098	1.7768	1.2245	1.7327	45
16	1.1826	1.8431	1.1960	1.8230	1.2100	1.7761	1.2248	1.7320	44
17	1.1828	1.8423	1.1962	1.8222	1.2103	1.7753	1.2250	1.7312	43
18	1.1831	1.8414	1.1964	1.8214	1.2105	1.7745	1.2253	1.7305	42
19	1.1833	1.8406	1.1967	1.8206	1.2107	1.7738	1.2255	1.7298	41
20	1.1835	1.8397	1.1969	1.8198	1.2110	1.7730	1.2258	1.7291	40
21	1.1837	1.8388	1.1971	1.8190	1.2112	1.7723	1.2260	1.7284	39
22	1.1839	1.8380	1.1974	1.8182	1.2115	1.7715	1.2263	1.7277	38
23	1.1842	1.8371	1.1976	1.8174	1.2117	1.7708	1.2265	1.7270	37
24	1.1844	1.8363	1.1978	1.8166	1.2120	1.7700	1.2268	1.7263	36
25	1.1846	1.8354	1.1981	1.8158	1.2122	1.7693	1.2271	1.7256	35
26	1.1848	1.8346	1.1983	1.8150	1.2124	1.7685	1.2273	1.7249	34
27	1.1850	1.8337	1.1985	1.8142	1.2127	1.7678	1.2276	1.7242	33
28	1.1852	1.8329	1.1987	1.8134	1.2129	1.7670	1.2278	1.7235	32
29	1.1855	1.8320	1.1990	1.8126	1.2132	1.7663	1.2281	1.7228	31
30	1.1857	1.8312	1.1992	1.8118	1.2134	1.7655	1.2283	1.7221	30
31	1.1859	1.8303	1.1994	1.8110	1.2136	1.7648	1.2286	1.7213	29
32	1.1861	1.8295	1.1997	1.8102	1.2139	1.7640	1.2288	1.7206	28
33	1.1863	1.8286	1.1999	1.8094	1.2141	1.7633	1.2291	1.7199	27
34	1.1866	1.8278	1.2001	1.8086	1.2144	1.7625	1.2293	1.7192	26
35	1.1868	1.8269	1.2004	1.8078	1.2146	1.7618	1.2296	1.7185	25
36	1.1870	1.8261	1.2006	1.8070	1.2149	1.7610	1.2299	1.7178	24
37	1.1872	1.8252	1.2008	1.8062	1.2151	1.7603	1.2301	1.7172	23
38	1.1875	1.8244	1.2011	1.8055	1.2154	1.7596	1.2304	1.7165	22
39	1.1877	1.8235	1.2013	1.8047	1.2156	1.7588	1.2306	1.7158	21
40	1.1879	1.8227	1.2015	1.8039	1.2158	1.7581	1.2309	1.7151	20
41	1.1881	1.8519	1.2018	1.8031	1.2161	1.7573	1.2311	1.7144	19
42	1.1883	1.8510	1.2020	1.8023	1.2163	1.7566	1.2314	1.7137	18
43	1.1886	1.8502	1.2022	1.8015	1.2166	1.7559	1.2317	1.7130	17
44	1.1888	1.8493	1.2025	1.8007	1.2168	1.7551	1.2319	1.7123	16
45	1.1890	1.8485	1.2027	1.8000	1.2171	1.7544	1.2322	1.7116	15
46	1.1892	1.8477	1.2029	1.7992	1.2173	1.7537	1.2324	1.7109	14
47	1.1894	1.8468	1.2032	1.7984	1.2176	1.7529	1.2327	1.7102	13
48	1.1897	1.8460	1.2034	1.7976	1.2178	1.7522	1.2329	1.7095	12
49	1.1899	1.8452	1.2036	1.7968	1.2181	1.7515	1.2332	1.7088	11
50	1.1901	1.8443	1.2039	1.7960	1.2183	1.7507	1.2335	1.7081	10
51	1.1903	1.8435	1.2041	1.7953	1.2185	1.7500	1.2337	1.7075	9
52	1.1906	1.8427	1.2043	1.7945	1.2188	1.7493	1.2340	1.7068	8
53	1.1908	1.8419	1.2046	1.7937	1.2190	1.7485	1.2342	1.7061	7
54	1.1910	1.8410	1.2048	1.7929	1.2193	1.7478	1.2345	1.7054	6
55	1.1912	1.8402	1.2050	1.7921	1.2195	1.7471	1.2348	1.7047	5
56	1.1915	1.8394	1.2053	1.7914	1.2198	1.7463	1.2350	1.7040	4
57	1.1917	1.8385	1.2055	1.7906	1.2200	1.7456	1.2353	1.7033	3
58	1.1919	1.8377	1.2057	1.7898	1.2203	1.7448	1.2355	1.7027	2
59	1.1921	1.8369	1.2060	1.7891	1.2205	1.7442	1.2358	1.7020	1
60	1.1924	1.8361	1.2062	1.7883	1.2208	1.7434	1.2361	1.7013	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	37°		36°		35°		34°		

## NATURAL SECANTS AND CO-SECANTS

1

	36°		37°		38°		39°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.3361	1.7013	1.3521	1.6616	1.3680	1.6243	1.3838	1.5890	64
1	1.2363	1.7006	1.2524	1.6610	1.2693	1.6237	1.2871	1.5884	65
2	1.2366	1.6999	1.2527	1.6604	1.2696	1.6231	1.2874	1.5879	66
3	1.2369	1.6993	1.2530	1.6597	1.2699	1.6225	1.2877	1.5873	67
4	1.2371	1.6986	1.2532	1.6591	1.2702	1.6219	1.2880	1.5867	68
5	1.2374	1.6979	1.2535	1.6584	1.2705	1.6213	1.2883	1.5862	69
6	1.2376	1.6972	1.2538	1.6578	1.2707	1.6206	1.2886	1.5856	70
7	1.2379	1.6965	1.2541	1.6572	1.2710	1.6200	1.2889	1.5850	71
8	1.2382	1.6959	1.2543	1.6565	1.2713	1.6194	1.2892	1.5845	72
9	1.2384	1.6952	1.2546	1.6559	1.2716	1.6188	1.2895	1.5839	73
10	1.2387	1.6945	1.2549	1.6553	1.2719	1.6183	1.2898	1.5833	74
11	1.2390	1.6938	1.2552	1.6546	1.2722	1.6177	1.2901	1.5828	75
12	1.2392	1.6932	1.2554	1.6540	1.2725	1.6171	1.2904	1.5822	76
13	1.2395	1.6925	1.2557	1.6534	1.2728	1.6165	1.2907	1.5816	77
14	1.2397	1.6918	1.2560	1.6527	1.2731	1.6159	1.2910	1.5811	78
15	1.2400	1.6913	1.2563	1.6521	1.2734	1.6153	1.2913	1.5805	79
16	1.2403	1.6905	1.2566	1.6515	1.2737	1.6147	1.2916	1.5799	80
17	1.2405	1.6898	1.2568	1.6508	1.2740	1.6141	1.2919	1.5794	81
18	1.2408	1.6892	1.2571	1.6502	1.2742	1.6135	1.2923	1.5788	82
19	1.2411	1.6885	1.2574	1.6496	1.2745	1.6129	1.2926	1.5783	83
20	1.2413	1.6878	1.2577	1.6490	1.2748	1.6123	1.2929	1.5777	84
21	1.2416	1.6871	1.2579	1.6483	1.2751	1.6117	1.2932	1.5771	85
22	1.2419	1.6865	1.2582	1.6477	1.2754	1.6111	1.2935	1.5766	86
23	1.2421	1.6858	1.2585	1.6471	1.2757	1.6105	1.2938	1.5760	87
24	1.2424	1.6851	1.2588	1.6464	1.2760	1.6099	1.2941	1.5755	88
25	1.2427	1.6845	1.2591	1.6458	1.2763	1.6093	1.2944	1.5749	89
26	1.2429	1.6838	1.2593	1.6452	1.2766	1.6087	1.2947	1.5744	90
27	1.2432	1.6832	1.2596	1.6445	1.2769	1.6082	1.2950	1.5738	91
28	1.2435	1.6825	1.2599	1.6439	1.2772	1.6076	1.2953	1.5732	92
29	1.2437	1.6818	1.2602	1.6433	1.2775	1.6070	1.2957	1.5727	93
30	1.2440	1.6813	1.2605	1.6427	1.2778	1.6064	1.2960	1.5721	94
31	1.2443	1.6805	1.2608	1.6421	1.2781	1.6058	1.2963	1.5716	95
32	1.2445	1.6799	1.2610	1.6414	1.2784	1.6052	1.2966	1.5710	96
33	1.2448	1.6792	1.2613	1.6408	1.2787	1.6046	1.2969	1.5705	97
34	1.2451	1.6785	1.2616	1.6402	1.2790	1.6040	1.2972	1.5699	98
35	1.2453	1.6779	1.2619	1.6396	1.2793	1.6035	1.2975	1.5694	99
36	1.2456	1.6772	1.2622	1.6390	1.2796	1.6029	1.2978	1.5688	24
37	1.2459	1.6766	1.2624	1.6383	1.2798	1.6023	1.2981	1.5683	23
38	1.2462	1.6759	1.2627	1.6377	1.2802	1.6017	1.2985	1.5677	22
39	1.2464	1.6753	1.2630	1.6371	1.2804	1.6011	1.2988	1.5672	21
40	1.2467	1.6746	1.2633	1.6365	1.2807	1.6005	1.2991	1.5666	20
41	1.2470	1.6739	1.2636	1.6359	1.2810	1.6000	1.2994	1.5661	19
42	1.2472	1.6733	1.2639	1.6352	1.2813	1.5994	1.2997	1.5655	18
43	1.2475	1.6726	1.2641	1.6346	1.2816	1.5988	1.3000	1.5650	17
44	1.2478	1.6720	1.2644	1.6340	1.2819	1.5982	1.3003	1.5644	16
45	1.2480	1.6713	1.2647	1.6334	1.2822	1.5976	1.3007	1.5639	15
46	1.2483	1.6707	1.2650	1.6328	1.2825	1.5971	1.3010	1.5633	14
47	1.2486	1.6700	1.2653	1.6322	1.2828	1.5965	1.3013	1.5628	13
48	1.2489	1.6694	1.2656	1.6316	1.2831	1.5959	1.3016	1.5622	12
49	1.2491	1.6687	1.2659	1.6310	1.2834	1.5953	1.3019	1.5617	11
50	1.2494	1.6681	1.2661	1.6303	1.2837	1.5947	1.3022	1.5611	10
51	1.2497	1.6674	1.2664	1.6297	1.2840	1.5942	1.3025	1.5606	9
52	1.2499	1.6668	1.2667	1.6291	1.2843	1.5936	1.3029	1.5600	8
53	1.2502	1.6661	1.2670	1.6285	1.2846	1.5930	1.3032	1.5595	7
54	1.2505	1.6655	1.2673	1.6279	1.2849	1.5924	1.3035	1.5590	6
55	1.2508	1.6649	1.2676	1.6273	1.2852	1.5919	1.3038	1.5584	5
56	1.2510	1.6642	1.2679	1.6267	1.2855	1.5913	1.3041	1.5579	4
57	1.2513	1.6636	1.2682	1.6261	1.2859	1.5907	1.3045	1.5573	3
58	1.2516	1.6629	1.2684	1.6255	1.2862	1.5902	1.3048	1.5568	2
59	1.2519	1.6623	1.2687	1.6249	1.2865	1.5896	1.3051	1.5563	1
60	1.2521	1.6616	1.2690	1.6243	1.2868	1.5890	1.3054	1.5557	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	

	40°		41°		42°		43°		
	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	
0	1.3054	1.5587	1.3290	1.5242	1.3456	1.4945	1.3673	1.4668	60
1	1.3057	1.5552	1.3253	1.5237	1.3460	1.4940	1.3677	1.4658	59
2	1.3060	1.5546	1.3257	1.5232	1.3463	1.4935	1.3681	1.4654	58
3	1.3064	1.5541	1.3260	1.5227	1.3467	1.4930	1.3684	1.4649	57
4	1.3067	1.5536	1.3264	1.5222	1.3470	1.4925	1.3688	1.4645	56
5	1.3070	1.5530	1.3267	1.5217	1.3474	1.4921	1.3692	1.4640	55
6	1.3073	1.5525	1.3270	1.5212	1.3478	1.4916	1.3696	1.4635	54
7	1.3076	1.5520	1.3274	1.5207	1.3481	1.4911	1.3699	1.4631	53
8	1.3080	1.5514	1.3277	1.5202	1.3485	1.4906	1.3703	1.4626	52
9	1.3083	1.5509	1.3280	1.5197	1.3488	1.4901	1.3707	1.4622	51
10	1.3086	1.5504	1.3284	1.5192	1.3492	1.4897	1.3711	1.4617	50
11	1.3089	1.5498	1.3287	1.5187	1.3495	1.4892	1.3714	1.4613	49
12	1.3092	1.5493	1.3291	1.5182	1.3499	1.4887	1.3718	1.4608	48
13	1.3096	1.5488	1.3294	1.5177	1.3502	1.4882	1.3722	1.4604	47
14	1.3099	1.5482	1.3297	1.5172	1.3506	1.4878	1.3726	1.4599	46
15	1.3102	1.5477	1.3301	1.5167	1.3510	1.4873	1.3729	1.4595	45
16	1.3105	1.5472	1.3304	1.5162	1.3513	1.4868	1.3733	1.4590	44
17	1.3109	1.5466	1.3307	1.5156	1.3517	1.4863	1.3737	1.4586	43
18	1.3112	1.5461	1.3311	1.5151	1.3521	1.4859	1.3741	1.4581	42
19	1.3115	1.5456	1.3314	1.5146	1.3524	1.4854	1.3744	1.4577	41
20	1.3118	1.5450	1.3318	1.5141	1.3527	1.4849	1.3748	1.4572	40
21	1.3122	1.5445	1.3321	1.5136	1.3531	1.4844	1.3752	1.4568	39
22	1.3125	1.5440	1.3325	1.5131	1.3535	1.4840	1.3756	1.4563	38
23	1.3128	1.5434	1.3328	1.5126	1.3538	1.4835	1.3759	1.4559	37
24	1.3131	1.5429	1.3331	1.5121	1.3542	1.4830	1.3763	1.4554	36
25	1.3135	1.5424	1.3335	1.5116	1.3545	1.4825	1.3767	1.4550	35
26	1.3138	1.5419	1.3338	1.5111	1.3549	1.4821	1.3771	1.4545	34
27	1.3141	1.5413	1.3342	1.5107	1.3553	1.4816	1.3775	1.4541	33
28	1.3144	1.5408	1.3345	1.5102	1.3556	1.4811	1.3778	1.4536	32
29	1.3148	1.5403	1.3348	1.5097	1.3560	1.4807	1.3782	1.4532	31
30	1.3151	1.5398	1.3352	1.5092	1.3563	1.4802	1.3786	1.4527	30
31	1.3154	1.5392	1.3355	1.5087	1.3567	1.4797	1.3790	1.4523	29
32	1.3157	1.5387	1.3359	1.5082	1.3571	1.4792	1.3794	1.4518	28
33	1.3161	1.5382	1.3362	1.5077	1.3574	1.4788	1.3797	1.4514	27
34	1.3164	1.5377	1.3366	1.5072	1.3578	1.4783	1.3801	1.4510	26
35	1.3167	1.5372	1.3369	1.5067	1.3582	1.4778	1.3805	1.4505	25
36	1.3171	1.5366	1.3373	1.5062	1.3585	1.4774	1.3809	1.4501	24
37	1.3174	1.5361	1.3376	1.5057	1.3589	1.4769	1.3813	1.4496	23
38	1.3177	1.5356	1.3379	1.5052	1.3592	1.4764	1.3817	1.4492	22
39	1.3180	1.5351	1.3383	1.5047	1.3596	1.4760	1.3820	1.4487	21
40	1.3184	1.5345	1.3386	1.5042	1.3600	1.4755	1.3824	1.4483	20
41	1.3187	1.5340	1.3390	1.5037	1.3603	1.4750	1.3828	1.4479	19
42	1.3190	1.5335	1.3393	1.5032	1.3607	1.4746	1.3832	1.4474	18
43	1.3194	1.5330	1.3397	1.5027	1.3611	1.4741	1.3836	1.4470	17
44	1.3197	1.5325	1.3400	1.5023	1.3614	1.4736	1.3840	1.4465	16
45	1.3200	1.5320	1.3404	1.5018	1.3618	1.4732	1.3844	1.4461	15
46	1.3203	1.5314	1.3407	1.5013	1.3622	1.4727	1.3847	1.4457	14
47	1.3207	1.5309	1.3411	1.5008	1.3625	1.4723	1.3851	1.4452	13
48	1.3210	1.5304	1.3414	1.5003	1.3629	1.4718	1.3855	1.4448	12
49	1.3213	1.5299	1.3418	1.4998	1.3633	1.4713	1.3859	1.4443	11
50	1.3217	1.5294	1.3421	1.4993	1.3636	1.4709	1.3863	1.4439	10
51	1.3220	1.5289	1.3425	1.4988	1.3640	1.4704	1.3867	1.4435	9
52	1.3223	1.5283	1.3428	1.4984	1.3644	1.4699	1.3870	1.4430	8
53	1.3227	1.5278	1.3432	1.4979	1.3647	1.4695	1.3874	1.4426	7
54	1.3230	1.5273	1.3435	1.4974	1.3651	1.4690	1.3878	1.4422	6
55	1.3233	1.5268	1.3439	1.4969	1.3655	1.4686	1.3882	1.4417	5
56	1.3237	1.5263	1.3442	1.4964	1.3658	1.4681	1.3886	1.4413	4
57	1.3240	1.5258	1.3446	1.4959	1.3662	1.4677	1.3890	1.4409	3
58	1.3243	1.5253	1.3449	1.4954	1.3666	1.4672	1.3894	1.4404	2
59	1.3247	1.5248	1.3453	1.4950	1.3670	1.4667	1.3898	1.4400	1
60	1.3250	1.5243	1.3456	1.4945	1.3673	1.4663	1.3902	1.4396	0
	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	Co-s't	Secant	
	40°		41°		42°		43°		

44°			44°			44°		
'	Secant	Co-s't	'	Secant	Co-s't	'	Secant	Co-s't
0	1.3902	1.4396	60	1.3984	1.4305	39	1.4065	1.4221
1	1.3906	1.4391	59	1.3988	1.4301	38	1.4069	1.4217
2	1.3909	1.4387	58	1.3992	1.4297	37	1.4073	1.4213
3	1.3913	1.4383	57	1.3996	1.4293	36	1.4077	1.4208
4	1.3917	1.4378	56	1.4000	1.4288	35	1.4081	1.4204
5	1.3921	1.4374	55	1.4004	1.4284	34	1.4085	1.4200
6	1.3925	1.4370	54	1.4008	1.4280	33	1.4089	1.4196
7	1.3929	1.4365	53	1.4012	1.4276	32	1.4093	1.4192
8	1.3933	1.4361	52	1.4016	1.4271	31	1.4097	1.4188
9	1.3937	1.4357	51	1.4020	1.4267	30	1.4101	1.4183
10	1.3941	1.4352	50	1.4024	1.4263	29	1.4105	1.4179
11	1.3945	1.4348	49	1.4028	1.4259	28	1.4109	1.4175
12	1.3949	1.4344	48	1.4032	1.4255	27	1.4113	1.4171
13	1.3953	1.4340	47	1.4036	1.4250	26	1.4117	1.4167
14	1.3957	1.4335	46	1.4040	1.4246	25	1.4122	1.4163
15	1.3961	1.4331	45	1.4044	1.4242	24	1.4126	1.4159
16	1.3965	1.4327	44	1.4048	1.4238	23	1.4130	1.4154
17	1.3969	1.4322	43	1.4052	1.4234	22	1.4134	1.4150
18	1.3972	1.4318	42	1.4057	1.4229	21	1.4138	1.4146
19	1.3976	1.4314	41	1.4061	1.4225	20	1.4142	1.4142
20	1.3980	1.4310	40					
'	Co-s't	Secant	'	Co-s't	Secant	'	Co-s't	Secant
45°			45°			45°		

NOTE.—In this and preceding trigonometrical tables for angles between 45° and 90° read from right-hand page to left-hand page and from bottom of page upward.

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
0	000.00	0000.00	0000	00000	0.0000	0.0000	—
1	3.142	0.7854	1	1	1.0000	1.0000	1000.00
2	6.283	3.1416	4	8	1.4142	1.2599	500.000
3	9.425	7.0686	9	27	1.7321	1.4422	333.333
4	12.566	12.5664	16	64	2.0000	1.5874	250.000
5	15.708	19.6350	25	125	2.2361	1.7100	200.000
6	18.850	28.2743	36	216	2.4495	1.8171	166.667
7	21.991	38.4845	49	343	2.6458	1.9129	142.857
8	25.133	50.2655	64	512	2.8284	2.0000	125.000
9	28.274	63.6173	81	729	3.0000	2.0801	111.111
10	31.416	78.5398	100	1000	3.1623	2.1544	100.000
11	34.558	95.0332	121	1331	3.3166	2.2240	90.9091
12	37.699	113.097	144	1728	3.4641	2.2894	83.3333
13	40.841	132.732	169	2197	3.6056	2.3513	76.9231
14	43.982	153.938	196	2744	3.7417	2.4101	71.4286
15	47.124	176.718	225	3375	3.8730	2.4662	66.6667
16	50.265	201.062	256	4096	4.0000	2.5198	62.5000
17	53.407	226.980	289	4913	4.1231	2.5713	58.8235
18	56.549	254.469	324	5832	4.2426	2.6207	55.5556
19	59.690	283.529	361	6859	4.3589	2.6684	52.6316
20	62.832	314.159	400	8000	4.4721	2.7144	50.0000
21	65.973	346.361	441	9261	4.5826	2.7589	47.6190
22	69.115	380.133	484	10648	4.6904	2.8020	45.4545
23	72.257	415.476	529	12167	4.7958	2.8439	43.4783
24	75.398	452.389	576	13824	4.8990	2.8845	41.6667
25	78.540	490.874	625	15625	5.0000	2.9240	40.0000
26	81.681	530.929	676	17576	5.0990	2.9625	38.4615
27	84.823	572.555	729	19683	5.1962	3.0000	37.0370
28	87.965	615.752	784	21952	5.2915	3.0366	35.7143
29	91.106	660.520	841	24389	5.3852	3.0723	34.4828
30	94.248	706.858	900	27000	5.4772	3.1072	33.3333
31	97.389	754.768	961	29791	5.5678	3.1414	32.2581
32	100.531	804.248	1024	32768	5.6569	3.1748	31.2500
33	103.673	855.299	1089	35937	5.7446	3.2075	30.3030
34	106.814	907.920	1156	39304	5.8310	3.2396	29.4118
35	109.956	962.118	1225	42875	5.9161	3.2711	28.5714
36	113.097	1017.88	1296	46656	6.0000	3.3019	27.7778
37	116.239	1075.21	1369	50653	6.0828	3.3322	27.0270
38	119.381	1134.11	1444	54872	6.1644	3.3620	26.3158
39	122.522	1194.59	1521	59319	6.2450	3.3912	25.6410
40	125.66	1256.64	1600	64000	6.3246	3.4200	25.0000
41	128.81	1320.25	1681	68921	6.4031	3.4482	24.3902
42	131.95	1385.44	1764	74088	6.4807	3.4760	23.8096
43	135.09	1452.20	1849	79507	6.5574	3.5034	23.2558
44	138.23	1520.53	1936	85184	6.6332	3.5303	22.7273
45	141.37	1590.43	2025	91125	6.7082	3.5569	22.2222
46	144.51	1661.90	2116	97336	6.7823	3.5830	21.7391
47	147.65	1734.94	2209	103823	6.8557	3.6088	21.2766
48	150.80	1809.56	2304	110592	6.9282	3.6342	20.8333
49	153.94	1885.74	2401	117649	7.0000	3.6593	20.4082

No.	No. — Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 × Reciprocals
	Circum.	Area.					
50	157.08	1963.80	2500	125000	7.0711	3.6840	20.0000
51	160.22	2042.82	2601	132651	7.1414	3.7084	19.6078
52	163.36	2123.72	2704	140808	7.2111	3.7325	19.2308
53	166.50	2206.18	2809	148877	7.2801	3.7563	18.8679
54	169.65	2290.22	2916	157484	7.3485	3.7798	18.5185
55	172.79	2375.83	3025	166375	7.4162	3.8030	18.1818
56	175.93	2463.01	3136	175616	7.4833	3.8259	17.8571
57	179.07	2551.76	3249	185193	7.5498	3.8485	17.5439
58	182.21	2642.08	3364	195112	7.6158	3.8709	17.2414
59	185.35	2733.97	3481	205379	7.6811	3.8930	16.9492
60	188.50	2827.43	3600	216000	7.7460	3.9149	16.6667
61	191.64	2922.47	3721	226981	7.8102	3.9365	16.3934
62	194.78	3019.07	3844	238328	7.8740	3.9579	16.1290
63	197.92	3117.25	3969	250047	7.9373	3.9791	15.8730
64	201.06	3216.99	4096	262144	8.0000	4.0000	15.6250
65	204.20	3318.31	4225	274625	8.0623	4.0207	15.3846
66	207.35	3421.19	4356	287496	8.1240	4.0412	15.1515
67	210.49	3525.65	4489	300763	8.1854	4.0615	14.9254
68	213.63	3631.68	4624	314432	8.2462	4.0817	14.7059
69	216.77	3739.28	4761	328509	8.3066	4.1016	14.4928
70	219.91	3848.45	4900	343000	8.3666	4.1213	14.2857
71	223.05	3959.19	5041	357911	8.4261	4.1408	14.0845
72	226.19	4071.50	5184	373248	8.4853	4.1602	13.8889
73	229.34	4185.39	5329	389017	8.5440	4.1793	13.6986
74	232.48	4300.84	5476	405224	8.6023	4.1983	13.5135
75	235.62	4417.85	5625	421875	8.6603	4.2172	13.3333
76	238.76	4536.46	5776	438976	8.7178	4.2358	13.1579
77	241.90	4656.63	5929	456533	8.7750	4.2543	12.9870
78	245.04	4778.36	6084	474552	8.8318	4.2727	12.8205
79	248.19	4901.67	6241	493039	8.8882	4.2908	12.6582
80	251.33	5026.55	6400	512000	8.9443	4.3089	12.5000
81	254.47	5153.00	6561	531441	9.0000	4.3267	12.3457
82	257.61	5281.02	6724	551368	9.0554	4.3445	12.1951
83	260.75	5410.61	6889	571787	9.1104	4.3621	12.0482
84	263.89	5541.77	7056	592704	9.1652	4.3795	11.9048
85	267.04	5674.50	7225	614125	9.2195	4.3968	11.7647
86	270.18	5808.80	7396	636056	9.2736	4.4140	11.6279
87	273.32	5944.68	7569	658503	9.3274	4.4310	11.4943
88	276.46	6082.12	7744	681472	9.3808	4.4480	11.3636
89	279.60	6221.14	7921	704969	9.4340	4.4647	11.2360
90	282.74	6361.73	8100	729000	9.4868	4.4814	11.1111
91	285.88	6503.88	8281	753571	9.5394	4.4979	10.9890
92	289.03	6647.61	8464	778688	9.5917	4.5144	10.8696
93	292.17	6792.91	8649	804357	9.6437	4.5307	10.7527
94	295.31	6939.78	8836	830584	9.6954	4.5468	10.6383
95	298.45	7088.22	9025	857375	9.7468	4.5629	10.5263
96	301.59	7238.23	9216	884736	9.7980	4.5789	10.4167
97	304.73	7389.81	9409	912673	9.8489	4.5947	10.3093
98	307.88	7542.96	9604	941192	9.8995	4.6104	10.2041
99	311.02	7697.69	9801	970299	9.9499	4.6261	10.1010

No.	No. — Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
100	314.16	7853.98	10000	1000000	10.0000	4.6416	10.00000
101	317.30	8011.85	10201	1030301	10.0499	4.6570	9.90099
102	320.44	8171.28	10404	1061208	10.0995	4.6723	9.80392
103	323.58	8332.29	10609	1092727	10.1489	4.6875	9.70874
104	326.73	8494.87	10816	1124864	10.1980	4.7027	9.61538
105	329.87	8659.01	11025	1157625	10.2470	4.7177	9.52351
106	333.01	8824.73	11236	1191016	10.2956	4.7328	9.43396
107	336.15	8992.03	11449	1225043	10.3441	4.7475	9.34579
108	339.29	9160.88	11664	1259712	10.3923	4.7622	9.25928
109	342.43	9331.32	11881	1295029	10.4403	4.7769	9.17431
110	345.58	9503.33	12100	1331000	10.4881	4.7914	9.09091
111	348.72	9676.89	12321	1367631	10.5357	4.8059	9.00901
112	351.86	9852.03	12544	1404928	10.5830	4.8203	8.92857
113	355.00	10028.7	12769	1442897	10.6301	4.8346	8.84956
114	358.14	10207.0	12996	1481544	10.6771	4.8488	8.77193
115	361.28	10386.9	13225	1520875	10.7238	4.8629	8.69565
116	364.42	10568.3	13456	1560896	10.7703	4.8770	8.62069
117	367.57	10751.3	13689	1601613	10.8167	4.8910	8.54701
118	370.71	10935.9	13924	1643032	10.8628	4.9049	8.47458
119	373.85	11122.0	14161	1685159	10.9087	4.9187	8.40336
120	376.99	11309.7	14400	1728000	10.9545	4.9324	8.33333
121	380.13	11499.0	14641	1771561	11.0000	4.9461	8.26446
122	383.27	11689.9	14884	1815848	11.0454	4.9597	8.19672
123	386.42	11882.3	15129	1860867	11.0905	4.9732	8.13008
124	389.56	12076.3	15376	1906624	11.1355	4.9866	8.06452
125	392.70	12271.8	15625	1953125	11.1803	5.0000	8.00000
126	395.84	12469.0	15876	2000376	11.2250	5.0133	7.93651
127	398.98	12667.7	16129	2048383	11.2694	5.0265	7.87402
128	402.12	12868.0	16384	2097152	11.3137	5.0397	7.81250
129	405.27	13069.8	16641	2146689	11.3578	5.0528	7.75194
130	408.41	13273.2	16900	2197000	11.4018	5.0658	7.69231
131	411.55	13478.2	17161	2248091	11.4455	5.0788	7.63359
132	414.69	13684.8	17424	2299968	11.4891	5.0916	7.57576
133	417.83	13892.9	17689	2352637	11.5326	5.1045	7.51890
134	420.97	14102.6	17956	2406104	11.5758	5.1172	7.46269
135	424.12	14313.9	18225	2460375	11.6190	5.1299	7.40741
136	427.26	14526.7	18496	2515456	11.6619	5.1426	7.35294
137	430.40	14741.1	18769	2571353	11.7047	5.1551	7.29927
138	433.54	14957.1	19044	2628072	11.7473	5.1676	7.24638
139	436.68	15174.7	19321	2685619	11.7898	5.1801	7.19424
140	439.83	15393.8	19600	2744000	11.8322	5.1925	7.14286
141	442.96	15614.5	19881	2803221	11.8743	5.2048	7.09220
142	446.11	15836.8	20164	2863288	11.9164	5.2171	7.04225
143	449.25	16060.6	20449	2924207	11.9583	5.2293	6.99301
144	452.39	16286.0	20736	2985984	12.0000	5.2415	6.94444
145	455.53	16513.0	21025	3048625	12.0416	5.2536	6.89655
146	458.67	16741.5	21316	3112136	12.0830	5.2656	6.84932
147	461.81	16971.7	21609	3176523	12.1244	5.2776	6.80272
148	464.96	17203.4	21904	3241792	12.1655	5.2896	6.75676
149	468.10	17436.6	22201	3307949	12.2066	5.3015	6.71141

No.	No. — Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
150	471.24	17671.5	22500	3375000	12.2474	5.3133	6.66467
151	474.38	17907.9	22801	3442951	12.2882	5.3251	6.62252
152	477.52	18145.8	23104	3511808	12.3288	5.3368	6.57895
153	480.66	18385.4	23409	3581577	12.3693	5.3485	6.53595
154	483.81	18626.5	23716	3652264	12.4097	5.3601	6.49351
155	486.95	18869.2	24025	3723875	12.4499	5.3717	6.45161
156	490.09	19113.4	24336	3796416	12.4900	5.3832	6.41026
157	493.23	19359.3	24649	3869893	12.5300	5.3947	6.36943
158	496.37	19606.7	24964	3944312	12.5698	5.4061	6.32911
159	499.51	19855.7	25281	4019679	12.6095	5.4175	6.28931
160	502.65	20106.2	25600	4096000	12.6491	5.4288	6.25000
161	505.80	20358.3	25921	4173281	12.6886	5.4401	6.21118
162	508.94	20612.0	26244	4251528	12.7279	5.4514	6.17284
163	512.08	20867.2	26569	4330747	12.7671	5.4626	6.13497
164	515.22	21124.1	26896	4410944	12.8062	5.4737	6.09756
165	518.36	21382.5	27225	4492125	12.8452	5.4848	6.06061
166	521.50	21642.4	27556	4574296	12.8841	5.4959	6.02410
167	524.65	21904.0	27889	4657463	12.9228	5.5069	5.98802
168	527.79	22167.1	28224	4741632	12.9615	5.5178	5.95238
169	530.93	22431.8	28561	4826809	13.0000	5.5288	5.91716
170	534.07	22698.0	28900	4913000	13.0384	5.5397	5.88235
171	537.21	22965.8	29241	5000211	13.0767	5.5505	5.84795
172	540.35	23235.2	29584	5088448	13.1149	5.5613	5.81395
173	543.50	23506.2	29929	5177717	13.1529	5.5721	5.78035
174	546.64	23778.7	30276	5268024	13.1909	5.5828	5.74713
175	549.78	24052.8	30625	5359375	13.2288	5.5934	5.71439
176	552.92	24328.5	30976	5451776	13.2665	5.6041	5.68182
177	556.06	24605.7	31329	5545233	13.3041	5.6147	5.64972
178	559.20	24884.6	31684	5639752	13.3417	5.6252	5.61798
179	562.35	25164.9	32041	5735339	13.3791	5.6357	5.58659
180	565.49	25446.9	32400	5832000	13.4164	5.6462	5.55556
181	568.63	25730.4	32761	5929741	13.4536	5.6567	5.52486
182	571.77	26015.5	33124	6028568	13.4907	5.6671	5.49451
183	574.91	26302.2	33489	6128487	13.5277	5.6774	5.46448
184	578.05	26590.4	33856	6229504	13.5647	5.6877	5.43478
185	581.19	26880.3	34225	6331625	13.6015	5.6980	5.40541
186	584.34	27171.6	34596	6434856	13.6382	5.7083	5.37634
187	587.48	27464.6	34969	6539203	13.6748	5.7185	5.34759
188	590.62	27759.1	35344	6644672	13.7113	5.7287	5.31915
189	593.76	28055.2	35721	6751269	13.7477	5.7388	5.29101
190	596.90	28352.9	36100	6859000	13.7840	5.7489	5.26316
191	600.04	28652.1	36481	6967871	13.8203	5.7590	5.23560
192	603.19	28952.9	36864	7077888	13.8564	5.7690	5.20833
193	606.33	29255.3	37249	7189057	13.8924	5.7790	5.18135
194	609.47	29559.2	37636	7301384	13.9284	5.7890	5.15464
195	612.61	29864.8	38025	7414875	13.9642	5.7989	5.12821
196	615.75	30171.9	38416	7529536	14.0000	5.8088	5.10204
197	618.89	30480.5	38809	7645373	14.0357	5.8186	5.07614
198	622.04	30790.7	39204	7762392	14.0712	5.8285	5.05051
199	625.18	31102.6	39601	7880599	14.1067	5.8383	5.02513



No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
200	628.32	31415.9	40000	8000000	14.1421	5.8480	5.00000
201	631.46	31730.9	40401	8120601	14.1774	5.8578	4.97512
202	634.60	32047.4	40804	8242408	14.2127	5.8675	4.95050
203	637.74	32365.5	41209	8365427	14.2478	5.8771	4.92611
204	640.89	32685.1	41616	8489664	14.2829	5.8868	4.90196
205	644.03	33006.4	42025	8615125	14.3178	5.8964	4.87805
206	647.17	33329.2	42436	8741816	14.3527	5.9059	4.85437
207	650.31	33653.5	42849	8869743	14.3875	5.9155	4.83092
208	653.45	33979.5	43264	8998912	14.4222	5.9250	4.80769
209	656.59	34307.0	43681	9129329	14.4568	5.9345	4.78469
210	659.73	34636.1	44100	9261000	14.4914	5.9439	4.76190
211	662.88	34966.7	44521	9393931	14.5258	5.9533	4.73934
212	666.02	35298.9	44944	9528128	14.5602	5.9627	4.71698
213	669.16	35632.7	45369	9663597	14.5945	5.9721	4.69484
214	672.30	35968.1	45796	9800344	14.6287	5.9814	4.67290
215	675.44	36306.0	46225	9938375	14.6629	5.9907	4.65116
216	678.58	36643.5	46656	10077696	14.6969	6.0000	4.62963
217	681.73	36983.6	47089	10218313	14.7309	6.0092	4.60829
218	684.87	37325.3	47524	10360232	14.7648	6.0185	4.58716
219	688.01	37668.5	47961	10503459	14.7986	6.0277	4.56621
220	691.15	38013.3	48400	10648000	14.8324	6.0368	4.54545
221	694.29	38359.6	48841	10793861	14.8661	6.0459	4.52489
222	697.43	38707.6	49284	10941048	14.8997	6.0550	4.50450
223	700.58	39057.1	49729	11089567	14.9332	6.0641	4.48431
224	703.72	39408.1	50176	11239424	14.9666	6.0732	4.46429
225	706.86	39760.8	50625	11390625	15.0000	6.0822	4.44444
226	710.00	40115.0	51076	11543176	15.0333	6.0912	4.42478
227	713.14	40470.8	51529	11697083	15.0665	6.1002	4.40529
228	716.28	40828.1	51984	11852352	15.0997	6.1091	4.38596
229	719.42	41187.1	52441	12008989	15.1327	6.1180	4.36681
230	722.57	41547.6	52900	12167000	15.1658	6.1269	4.34783
231	725.71	41909.6	53361	12326391	15.1987	6.1358	4.32900
232	728.85	42273.3	53824	12487168	15.2315	6.1446	4.31034
233	731.99	42638.5	54289	12649337	15.2643	6.1534	4.29185
234	735.13	43005.3	54756	12812904	15.2971	6.1622	4.27350
235	738.27	43373.6	55225	12977875	15.3297	6.1710	4.25532
236	741.42	43743.5	55696	13144256	15.3623	6.1797	4.23729
237	744.56	44115.0	56169	13312053	15.3948	6.1885	4.21941
238	747.70	44488.1	56644	13481272	15.4272	6.1972	4.20168
239	750.84	44862.7	57121	13651919	15.4596	6.2058	4.18410
240	753.98	45238.9	57600	13824000	15.4919	6.2145	4.16667
241	757.12	45616.7	58081	13997521	15.5242	6.2231	4.14938
242	760.27	45996.1	58564	14172488	15.5563	6.2317	4.13223
243	763.41	46377.0	59049	14348907	15.5885	6.2403	4.11523
244	766.55	46759.5	59536	14526784	15.6205	6.2488	4.09836
245	769.69	47143.5	60025	14706125	15.6525	6.2573	4.08163
246	772.83	47529.2	60516	14886936	15.6844	6.2658	4.06504
247	775.97	47916.4	61009	15069223	15.7162	6.2743	4.04858
248	779.12	48305.1	61504	15252992	15.7480	6.2828	4.03226
249	782.26	48695.5	62001	15438249	15.7797	6.2912	4.01606

No.	No. — Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 × Reciprocal.
	Circum.	Area.					
250	785.40	49067.4	63500	15825000	15.8114	6.2996	4.00000
251	788.54	49480.9	63001	15813251	15.8430	6.3080	3.98406
252	791.68	49875.9	63504	16003008	15.8745	6.3164	3.96825
253	794.82	50272.6	64009	16194277	15.9060	6.3247	3.95257
254	797.96	50670.7	64516	16387084	15.9374	6.3330	3.93701
255	801.11	51070.5	65025	16581375	15.9687	6.3413	3.92157
256	804.25	51471.9	65536	16777216	16.0000	6.3496	3.90625
257	807.39	51874.8	66049	16974593	16.0312	6.3579	3.89105
258	810.53	52279.2	66564	17173512	16.0624	6.3661	3.87597
259	813.67	52685.3	67081	17373979	16.0935	6.3743	3.86100
260	816.81	53092.9	67600	17576000	16.1245	6.3825	3.84615
261	819.96	53502.1	68121	17779581	16.1555	6.3907	3.83142
262	823.10	53912.9	68644	17984728	16.1864	6.3988	3.81679
263	826.24	54325.2	69169	18191447	16.2173	6.4070	3.80228
264	829.38	54739.1	69696	18399744	16.2481	6.4151	3.78788
265	832.52	55154.6	70225	18609625	16.2788	6.4232	3.77358
266	835.66	55571.6	70756	18821096	16.3095	6.4312	3.75940
267	838.81	55990.3	71289	19034163	16.3401	6.4393	3.74532
268	841.95	56410.4	71824	19248832	16.3707	6.4473	3.73134
269	845.09	56832.2	72361	19465109	16.4012	6.4553	3.71747
270	848.23	57254.5	72900	19683000	16.4317	6.4633	3.70370
271	851.37	57680.4	73441	19902511	16.4621	6.4713	3.69004
272	854.51	58106.9	73984	20123648	16.4924	6.4792	3.67647
273	857.66	58534.9	74529	20346417	16.5227	6.4872	3.66300
274	860.80	58964.6	75076	20570824	16.5529	6.4951	3.64964
275	863.94	59395.7	75625	20796875	16.5831	6.5030	3.63636
276	867.08	59828.5	76176	21024576	16.6132	6.5108	3.62319
277	870.22	60262.8	76729	21253933	16.6433	6.5187	3.61011
278	873.36	60698.7	77284	21484952	16.6733	6.5265	3.59712
279	876.50	61136.2	77841	21717639	16.7033	6.5343	3.58423
280	879.65	61575.2	78400	21952000	16.7332	6.5421	3.57143
281	882.79	62015.8	78961	22188041	16.7631	6.5499	3.55872
282	885.93	62458.0	79524	22425768	16.7929	6.5577	3.54610
283	889.07	62901.8	80089	22665187	16.8226	6.5654	3.53357
284	892.21	63347.1	80656	22906304	16.8523	6.5731	3.52113
285	895.35	63794.0	81225	23149125	16.8819	6.5806	3.50877
286	898.50	64242.4	81796	23393656	16.9115	6.5885	3.49650
287	901.64	64692.5	82369	23639903	16.9411	6.5962	3.48432
288	904.78	65144.1	82944	23887872	16.9706	6.6039	3.47222
289	907.92	65597.2	83521	24137569	17.0000	6.6115	3.46021
290	911.06	66052.0	84100	24389000	17.0294	6.6191	3.44828
291	914.20	66508.3	84681	24642171	17.0587	6.6267	3.43643
292	917.35	66966.2	85264	24897088	17.0880	6.6343	3.42466
293	920.49	67425.6	85849	25153757	17.1172	6.6419	3.41297
294	923.63	67886.7	86436	25412184	17.1464	6.6494	3.40136
295	926.77	68349.2	87025	25672375	17.1756	6.6569	3.38983
296	929.91	68813.5	87616	25934336	17.2047	6.6644	3.37838
297	933.05	69279.2	88209	26198073	17.2337	6.6719	3.36700
298	936.19	69746.5	88804	26463592	17.2627	6.6794	3.35570
299	939.34	70215.4	89401	26730899	17.2916	6.6869	3.34448

No.	No. — Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 × Reciprocals
	Circum.	Area.					
300	942.48	70655.8	90000	27000000	17.3205	6.6042	2.33333
301	945.62	71157.9	90601	27270901	17.3494	6.7018	2.32226
302	948.76	71681.5	91204	27543608	17.3781	6.7092	2.31126
303	951.90	72106.6	91809	27818127	17.4069	6.7166	2.30033
304	955.04	72583.4	92416	28094464	17.4356	6.7240	2.28947
305	958.19	73061.7	93025	28372625	17.4642	6.7312	2.27869
306	961.33	73541.5	93636	28652616	17.4929	6.7387	2.26797
307	964.47	74023.0	94249	28934443	17.5214	6.7460	2.25733
308	967.61	74506.0	94864	29218112	17.5499	6.7533	2.24675
309	970.75	74990.6	95481	29503629	17.5784	6.7606	2.23625
310	973.89	75476.8	96100	29791000	17.6068	6.7679	2.22581
311	977.04	75964.5	96721	30080231	17.6352	6.7752	2.21543
312	980.18	76453.8	97344	30371328	17.6635	6.7824	2.20513
313	983.32	76944.7	97969	30664297	17.6918	6.7897	2.19489
314	986.46	77437.1	98596	30959144	17.7200	6.7969	2.18471
315	989.60	77931.1	99225	31255875	17.7482	6.8041	2.17460
316	992.74	78426.7	99856	31554496	17.7764	6.8113	2.16456
317	995.88	78923.9	100489	31855013	17.8045	6.8185	2.15457
318	999.03	79422.6	101124	32157432	17.8326	6.8256	2.14465
319	1002.2	79922.9	101761	32461759	17.8606	6.8328	2.13480
320	1005.3	80424.8	102400	32768000	17.8886	6.8399	2.12500
321	1008.5	80928.2	103041	33076161	17.9165	6.8470	2.11527
322	1011.6	81433.2	103684	33386248	17.9444	6.8541	2.10559
323	1014.7	81939.8	104329	33698267	17.9722	6.8612	2.09598
324	1017.9	82448.0	104976	34012224	18.0000	6.8683	2.08642
325	1021.0	82957.7	105625	34328125	18.0278	6.8753	2.07692
326	1024.2	83469.0	106276	34645976	18.0555	6.8824	2.06749
327	1027.3	83981.8	106929	34965783	18.0831	6.8894	2.05810
328	1030.4	84496.3	107584	35287552	18.1108	6.8964	2.04878
329	1033.6	85012.3	108241	35611289	18.1384	6.9034	2.03951
330	1036.7	85529.9	108900	35937000	18.1659	6.9104	2.03030
331	1039.9	86049.0	109561	36264691	18.1934	6.9174	2.02115
332	1043.0	86569.7	110224	36594368	18.2209	6.9244	2.01205
333	1046.2	87092.0	110889	36926037	18.2483	6.9313	2.00300
334	1049.3	87615.9	111556	37259704	18.2757	6.9382	2.99401
335	1052.4	88141.3	112225	37595375	18.3030	6.9451	2.98507
336	1055.6	88668.3	112896	37933056	18.3303	6.9521	2.97619
337	1058.7	89196.9	113569	38272753	18.3576	6.9590	2.96736
338	1061.9	89727.0	114244	38614472	18.3848	6.9658	2.95858
339	1065.0	90258.7	114921	38958219	18.4120	6.9727	2.94985
340	1068.1	90792.0	115600	39304000	18.4391	6.9795	2.94118
341	1071.3	91326.9	116281	39651821	18.4662	6.9864	2.93255
342	1074.4	91863.3	116964	40001688	18.4932	6.9932	2.92398
343	1077.6	92401.3	117649	40353607	18.5203	7.0000	2.91545
344	1080.7	92940.9	118336	40707584	18.5472	7.0068	2.90698
345	1083.8	93482.0	119025	41063625	18.5742	7.0136	2.89856
346	1087.0	94024.7	119716	41421736	18.6011	7.0203	2.89017
347	1090.1	94569.0	120409	41781923	18.6279	7.0271	2.88184
348	1093.3	95114.9	121104	42144192	18.6548	7.0338	2.87356
349	1096.4	95662.3	121801	42508549	18.6815	7.0406	2.86533

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocal.
	Circum.	Area.					
350	1099.6	96211.3	122500	42875000	18.7083	7.0473	2.88714
351	1102.7	96761.8	123201	43243551	18.7350	7.0540	2.84900
352	1105.8	97314.0	123904	43614208	18.7617	7.0607	2.84091
353	1109.0	97867.7	124609	43986977	18.7883	7.0674	2.83286
354	1112.1	98423.0	125316	44361864	18.8149	7.0740	2.82486
355	1115.3	98979.8	126025	44738875	18.8414	7.0807	2.81690
356	1118.4	99538.2	126736	45118016	18.8680	7.0873	2.80899
357	1121.5	100098	127449	45499293	18.8944	7.0940	2.80112
358	1124.7	100660	128164	45882712	18.9209	7.1006	2.79330
359	1127.8	101223	128881	46268279	18.9473	7.1072	2.78552
360	1131.0	101788	129600	46656000	18.9737	7.1138	2.77778
361	1134.1	102354	130321	47045881	19.0000	7.1204	2.77008
362	1137.3	102922	131044	47437928	19.0263	7.1269	2.76243
363	1140.4	103491	131769	47832147	19.0526	7.1335	2.75482
364	1143.5	104062	132496	48228544	19.0788	7.1400	2.74725
365	1146.7	104635	133225	48627125	19.1050	7.1466	2.73973
366	1149.8	105209	133956	49027896	19.1311	7.1531	2.73224
367	1153.0	105785	134689	49430863	19.1572	7.1596	2.72480
368	1156.1	106362	135424	49836032	19.1833	7.1661	2.71739
369	1159.2	106941	136161	50243409	19.2094	7.1726	2.71003
370	1162.4	107521	136900	50653000	19.2354	7.1791	2.70270
371	1165.5	108103	137641	51064811	19.2614	7.1855	2.69542
372	1168.7	108687	138384	51478848	19.2873	7.1920	2.68817
373	1171.8	109272	139129	51895117	19.3132	7.1984	2.68097
374	1175.0	109858	139876	52313624	19.3391	7.2048	2.67380
375	1178.1	110447	140625	52734375	19.3649	7.2112	2.66667
376	1181.2	111036	141376	53157376	19.3907	7.2177	2.65957
377	1184.4	111628	142129	53582633	19.4165	7.2240	2.65252
378	1187.5	112221	142884	54010152	19.4422	7.2304	2.64550
379	1190.7	112815	143641	54439939	19.4679	7.2368	2.63852
380	1193.8	113411	144400	54872000	19.4936	7.2432	2.63158
381	1196.9	114009	145161	55306341	19.5192	7.2495	2.62467
382	1200.1	114608	145924	55742968	19.5448	7.2558	2.61780
383	1203.2	115209	146689	56181887	19.5704	7.2622	2.61097
384	1206.4	115812	147456	56623104	19.5959	7.2685	2.60417
385	1209.5	116416	148225	57066625	19.6214	7.2748	2.59740
386	1212.7	117021	148996	57512456	19.6469	7.2811	2.59067
387	1215.8	117628	149769	57960603	19.6723	7.2874	2.58398
388	1218.9	118237	150544	58411072	19.6977	7.2936	2.57732
389	1222.1	118847	151321	58863869	19.7231	7.2999	2.57069
390	1225.2	119459	152100	59319000	19.7484	7.3061	2.56410
391	1228.4	120072	152881	59776471	19.7737	7.3124	2.55755
392	1231.5	120687	153664	60236288	19.7990	7.3186	2.55102
393	1234.6	121304	154449	60698457	19.8242	7.3248	2.54453
394	1237.8	121922	155236	61162984	19.8494	7.3310	2.53807
395	1240.9	122543	156025	61630875	19.8746	7.3372	2.53165
396	1244.1	123166	156816	62099136	19.8997	7.3434	2.52525
397	1247.2	123786	157609	62570773	19.9249	7.3496	2.51889
398	1250.4	124410	158404	63044792	19.9499	7.3558	2.51256
399	1253.5	125036	159201	63521199	19.9750	7.3619	2.50627

No.	No. = Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
400	1256.6	125664	160000	64000000	20.0000	7.3651	2.50000
401	1259.8	126293	160801	64481201	20.0250	7.3742	2.49377
402	1262.9	126923	161604	64964808	20.0499	7.3893	2.48756
403	1266.1	127556	162409	65450827	20.0749	7.3864	2.48139
404	1269.2	128190	163216	65939264	20.0998	7.3925	2.47525
405	1272.3	128828	164025	66430125	20.1248	7.3986	2.46914
406	1275.5	129462	164836	66923416	20.1494	7.4047	2.46305
407	1278.6	130100	165649	67419143	20.1742	7.4108	2.45700
408	1281.8	130741	166464	67917312	20.1990	7.4169	2.45098
409	1284.9	131382	167281	68417929	20.2237	7.4229	2.44499
410	1288.1	132025	168100	68921000	20.2485	7.4290	2.43902
411	1291.2	132670	168921	69426531	20.2731	7.4350	2.43309
412	1294.3	133317	169744	69934528	20.2978	7.4410	2.42718
413	1297.5	133965	170569	70444997	20.3224	7.4470	2.42131
414	1300.6	134614	171396	70957944	20.3470	7.4530	2.41546
415	1303.8	135265	172225	71473375	20.3715	7.4590	2.40964
416	1306.9	135918	173056	71991296	20.3961	7.4650	2.40385
417	1310.0	136572	173889	72511713	20.4206	7.4710	2.39808
418	1313.2	137228	174724	73034632	20.4450	7.4770	2.39234
419	1316.3	137885	175561	73560059	20.4695	7.4829	2.38664
420	1319.5	138544	176400	74088000	20.4939	7.4889	2.38095
421	1322.6	139205	177241	74618461	20.5183	7.4948	2.37530
422	1325.8	139867	178084	75151448	20.5426	7.5007	2.36967
423	1328.9	140531	178929	75686967	20.5670	7.5067	2.36407
424	1332.0	141196	179776	76225024	20.5913	7.5126	2.35849
425	1335.2	141863	180625	76765625	20.6155	7.5185	2.35294
426	1338.3	142531	181476	77308776	20.6398	7.5244	2.34742
427	1341.5	143201	182329	77854483	20.6640	7.5302	2.34192
428	1344.6	143872	183184	78402752	20.6882	7.5361	2.33645
429	1347.7	144545	184041	78953589	20.7123	7.5420	2.33100
430	1350.9	145220	184900	79507000	20.7364	7.5478	2.32558
431	1354.0	145896	185761	80062991	20.7605	7.5537	2.32019
432	1357.2	146574	186624	80621568	20.7846	7.5595	2.31482
433	1360.3	147254	187489	81182737	20.8087	7.5654	2.30947
434	1363.5	147934	188356	81746504	20.8327	7.5712	2.30415
435	1366.6	148617	189225	82312875	20.8567	7.5770	2.29885
436	1369.7	149301	190096	82881856	20.8806	7.5828	2.29358
437	1372.9	149987	190969	83453453	20.9045	7.5886	2.28833
438	1376.0	150674	191844	84027672	20.9284	7.5944	2.28311
439	1379.2	151363	192721	84604519	20.9523	7.6001	2.27790
440	1382.3	152053	193600	85184000	20.9762	7.6059	2.27273
441	1385.4	152745	194481	85766121	21.0000	7.6117	2.26757
442	1388.6	153439	195364	86350888	21.0238	7.6174	2.26244
443	1391.7	154134	196249	86938307	21.0476	7.6232	2.25734
444	1394.9	154830	197136	87528384	21.0713	7.6289	2.25225
445	1398.0	155528	198025	88121125	21.0950	7.6346	2.24719
446	1401.2	156228	198916	88716536	21.1187	7.6403	2.24215
447	1404.3	156930	199809	89314623	21.1424	7.6460	2.23714
448	1407.4	157633	200704	89915392	21.1660	7.6517	2.23214
449	1410.6	158337	201601	90518849	21.1896	7.6574	2.22717

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocal
	Circum.	Area.					
450	1412.7	159043	202800	91125000	21.2132	7.6631	2.2222
451	1416.9	159751	203401	91733851	21.2368	7.6688	2.21730
452	1420.0	160460	204304	92345408	21.2803	7.6744	2.21239
453	1423.1	161171	205209	92959677	21.2838	7.6801	2.20751
454	1426.3	161883	206116	93576664	21.3073	7.6857	2.20264
455	1429.4	162597	207025	94196375	21.3307	7.6914	2.19780
456	1432.6	163313	207936	94818816	21.3542	7.6970	2.19298
457	1435.7	164030	208849	95443993	21.3776	7.7026	2.18818
458	1438.9	164748	209764	96071912	21.4009	7.7082	2.18341
459	1442.0	165468	210681	96702579	21.4243	7.7138	2.17865
460	1445.1	166189	211600	97336000	21.4476	7.7194	2.17391
461	1448.3	166914	212521	97972181	21.4709	7.7250	2.16920
462	1451.4	167639	213444	98611128	21.4942	7.7306	2.16450
463	1454.6	168365	214369	99252847	21.5174	7.7362	2.15983
464	1457.7	169093	215296	99897344	21.5407	7.7418	2.15517
465	1460.8	169823	216225	100644625	21.5639	7.7473	2.15064
466	1464.0	170554	217156	101194896	21.5870	7.7529	2.14592
467	1467.1	171287	218089	101847563	21.6102	7.7584	2.14133
468	1470.3	172024	219024	102503232	21.6333	7.7639	2.13675
469	1473.4	172757	219961	103161709	21.6564	7.7695	2.13220
470	1476.5	173494	220900	103823000	21.6795	7.7750	2.12768
471	1479.7	174234	221841	104487111	21.7025	7.7805	2.12314
472	1482.8	174974	222784	105154048	21.7256	7.7860	2.11864
473	1486.0	175716	223729	105823817	21.7486	7.7915	2.11417
474	1489.1	176460	224676	106496424	21.7715	7.7970	2.10971
475	1492.3	177206	225625	107171875	21.7945	7.8025	2.10526
476	1495.4	177952	226576	107850176	21.8174	7.8079	2.10084
477	1498.5	178701	227529	108531333	21.8403	7.8134	2.09644
478	1501.7	179451	228484	109215352	21.8632	7.8188	2.09205
479	1504.8	180203	229441	109902239	21.8861	7.8243	2.08768
480	1508.0	180956	230400	110592000	21.9089	7.8297	2.08333
481	1511.1	181711	231361	111284641	21.9317	7.8352	2.07900
482	1514.3	182467	232324	111980168	21.9545	7.8406	2.07469
483	1517.4	183225	233289	112678587	21.9773	7.8460	2.07039
484	1520.5	183984	234256	113379904	22.0000	7.8514	2.06612
485	1523.7	184745	235225	114084125	22.0227	7.8568	2.06186
486	1526.8	185508	236196	114791256	22.0454	7.8622	2.05761
487	1530.0	186272	237169	115501303	22.0681	7.8676	2.05339
488	1533.1	187038	238144	116214272	22.0907	7.8730	2.04918
489	1536.2	187805	239121	116930169	22.1133	7.8784	2.04499
490	1539.4	188574	240100	117648000	22.1359	7.8837	2.04083
491	1542.5	189345	241081	118370771	22.1585	7.8891	2.03666
492	1545.7	190117	242064	119095488	22.1811	7.8944	2.03252
493	1548.8	190890	243049	119823157	22.2036	7.8998	2.02840
494	1551.9	191665	244036	120553784	22.2261	7.9051	2.02429
495	1555.1	192442	245025	121287375	22.2486	7.9105	2.02020
496	1558.2	193221	246016	122023936	22.2711	7.9158	2.01613
497	1561.4	194000	247009	122763473	22.2935	7.9211	2.01207
498	1564.5	194782	248004	123505992	22.3159	7.9264	2.00803
499	1567.7	195565	249001	124251499	22.3388	7.9317	2.00401

## CIRCUMFERENCES, AREAS, SQUARES, CUBES, SQUARE ROOTS.

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocal.
	Circum.	Area.					
00	1570.8	196350	250000	125000000	22.3607	7.9370	2.00000
01	1573.9	197136	251001	125751501	22.3830	7.9423	1.99601
02	1577.1	197923	252004	126506008	22.4054	7.9476	1.99203
03	1580.2	198713	253009	127263527	22.4277	7.9528	1.98807
04	1583.4	199504	254016	128024064	22.4499	7.9581	1.98413
05	1586.5	200296	255025	128787625	22.4722	7.9634	1.98020
06	1589.7	201090	256036	129554216	22.4944	7.9686	1.97629
07	1592.8	201886	257049	130323843	22.5167	7.9739	1.97239
08	1595.9	202683	258064	131096512	22.5389	7.9791	1.96850
09	1599.1	203482	259081	131872229	22.5610	7.9843	1.96464
10	1602.2	204283	260100	132651000	22.5832	7.9896	1.96078
11	1605.4	205084	261121	133432831	22.6053	7.9948	1.95695
12	1608.5	205887	262144	134217728	22.6274	8.0000	1.95312
13	1611.6	206692	263169	135005697	22.6495	8.0052	1.94932
14	1614.8	207499	264196	135796744	22.6716	8.0104	1.94553
15	1617.9	208307	265225	136590875	22.6936	8.0156	1.94175
16	1621.1	209117	266256	137388096	22.7156	8.0208	1.93798
17	1624.2	209928	267289	138188413	22.7376	8.0260	1.93424
18	1627.3	210741	268324	138991832	22.7596	8.0311	1.93050
19	1630.5	211556	269361	139798359	22.7816	8.0363	1.92678
20	1633.6	212373	270400	140608000	22.8035	8.0415	1.92308
21	1636.8	213189	271441	141420761	22.8254	8.0466	1.91939
22	1639.9	214008	272484	142236648	22.8473	8.0517	1.91571
23	1643.1	214829	273529	143055667	22.8692	8.0569	1.91205
24	1646.2	215651	274576	143877824	22.8910	8.0620	1.90840
25	1649.3	216475	275625	144703125	22.9129	8.0671	1.90476
26	1652.5	217301	276676	145531576	22.9347	8.0723	1.90114
27	1655.6	218128	277729	146363183	22.9565	8.0774	1.89753
28	1658.8	218956	278784	147197952	22.9783	8.0825	1.89394
29	1661.9	219787	279841	148035889	23.0000	8.0876	1.89036
30	1665.0	220618	280900	148877000	23.0217	8.0927	1.88679
31	1668.2	221452	281961	149721291	23.0434	8.0978	1.88324
32	1671.3	222287	283024	150568768	23.0651	8.1028	1.87970
33	1674.5	223123	284089	151419437	23.0868	8.1079	1.87617
34	1677.6	223961	285156	152273304	23.1084	8.1130	1.87266
35	1680.8	224801	286225	153130375	23.1301	8.1180	1.86916
36	1683.9	225642	287296	153990656	23.1517	8.1231	1.86567
37	1687.0	226484	288369	154854153	23.1733	8.1281	1.86220
38	1690.2	227329	289444	155720872	23.1948	8.1332	1.85874
39	1693.3	228175	290521	156590819	23.2164	8.1382	1.85529
40	1696.5	229023	291600	157464000	23.2379	8.1433	1.85185
41	1699.6	229871	292681	158340421	23.2594	8.1483	1.84843
42	1702.7	230722	293764	159220088	23.2809	8.1533	1.84502
43	1705.9	231574	294849	160103007	23.3024	8.1583	1.84162
44	1709.0	232428	295936	160989184	23.3238	8.1633	1.83824
45	1712.2	233283	297025	161878625	23.3452	8.1683	1.83486
46	1715.3	234140	298116	162771336	23.3666	8.1733	1.83150
47	1718.5	234998	299209	163667323	23.3880	8.1783	1.82815
48	1721.6	235858	300304	164566592	23.4094	8.1833	1.82482
49	1724.7	236720	301401	165469149	23.4307	8.1882	1.82149

CUBE ROOTS AND RECIPROCAL OF NOS. FROM 1 TO 1000.

No.	No. = Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocal
	Circum.	Area.					
550	1727.9	297883	302509	166375000	23.4521	8.1932	1.8181
551	1731.0	298448	303601	167284151	23.4734	8.1982	1.8148
552	1734.2	299314	304704	168196608	23.4947	8.2031	1.8115
553	1737.3	240182	305809	169112377	23.5160	8.2081	1.8083
554	1740.4	241051	306916	170031464	23.5372	8.2130	1.8050
555	1743.6	241922	308025	170953875	23.5584	8.2180	1.8018
556	1746.7	242795	309136	171879616	23.5797	8.2229	1.7985
557	1749.9	243669	310249	172808693	23.6008	8.2278	1.7953
558	1753.0	244545	311364	173741112	23.6220	8.2327	1.7921
559	1756.2	245422	312481	174676879	23.6432	8.2377	1.7889
560	1759.3	246301	313600	175616000	23.6643	8.2426	1.7857
561	1762.4	247181	314721	176558481	23.6854	8.2475	1.7825
562	1765.6	248063	315844	177504328	23.7065	8.2524	1.7793
563	1768.7	248947	316969	178453547	23.7276	8.2573	1.7762
564	1771.9	249832	318096	179406144	23.7487	8.2621	1.7730
565	1775.0	250719	319225	180363125	23.7697	8.2670	1.7699
566	1778.1	251607	320356	181324496	23.7908	8.2719	1.7667
567	1781.3	252497	321489	182284263	23.8118	8.2768	1.7636
568	1784.4	253388	322624	183250432	23.8328	8.2816	1.7604
569	1787.6	254281	323761	184220009	23.8537	8.2865	1.7574
570	1790.7	255176	324900	185193000	23.8747	8.2913	1.7543
571	1793.9	256072	326041	186169411	23.8956	8.2962	1.7513
572	1797.0	256970	327184	187149248	23.9165	8.3010	1.7482
573	1800.1	257869	328329	188132517	23.9374	8.3059	1.7452
574	1803.3	258770	329476	189119224	23.9583	8.3107	1.7421
575	1806.4	259672	330625	190109375	23.9792	8.3155	1.7391
576	1809.6	260576	331776	191102976	24.0000	8.3203	1.7361
577	1812.7	261482	332929	192100033	24.0208	8.3251	1.7331
578	1815.8	262389	334084	193100552	24.0416	8.3300	1.7301
579	1819.0	263298	335241	194104539	24.0624	8.3348	1.7271
580	1822.1	264208	336400	195112000	24.0832	8.3396	1.7241
581	1825.3	265120	337561	196122941	24.1039	8.3443	1.7211
582	1828.4	266033	338724	197137368	24.1247	8.3491	1.7182
583	1831.6	266948	339889	198155287	24.1454	8.3539	1.7152
584	1834.7	267865	341056	199176704	24.1661	8.3587	1.7123
585	1837.8	268783	342225	200201625	24.1868	8.3634	1.7094
586	1841.0	269701	343396	201230056	24.2074	8.3682	1.7064
587	1844.1	270624	344569	202262008	24.2281	8.3730	1.7035
588	1847.3	271547	345744	203297472	24.2487	8.3777	1.7006
589	1850.4	272471	346921	204336469	24.2693	8.3825	1.6977
590	1853.5	273397	348100	205379000	24.2899	8.3872	1.6948
591	1856.7	274325	349281	206425071	24.3105	8.3919	1.6920
592	1859.8	275254	350464	207474688	24.3311	8.3967	1.6891
593	1863.0	276184	351649	208527857	24.3516	8.4014	1.6863
594	1866.1	277117	352836	209584584	24.3721	8.4061	1.6835
595	1869.3	278051	354025	210644875	24.3926	8.4108	1.6806
596	1872.4	278986	355216	211708736	24.4131	8.4155	1.6778
597	1875.5	279923	356409	212776173	24.4336	8.4202	1.6750
598	1878.7	280862	357604	213847192	24.4540	8.4249	1.6722
599	1881.8	281802	358801	214921799	24.4745	8.4296	1.6694



No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
600	1885.0	283742	360000	216000000	24.4949	3.4343	1.66687
601	1888.1	283687	361201	217081801	24.5153	3.4390	1.66389
602	1891.2	284631	362404	218167208	24.5357	3.4437	1.66113
603	1894.4	285578	363609	219256227	24.5561	3.4484	1.65837
604	1897.5	286526	364816	220348864	24.5764	3.4530	1.65563
605	1900.7	287475	366025	221445125	24.5967	3.4577	1.65289
606	1903.8	288426	367236	222545016	24.6171	3.4623	1.65017
607	1907.0	289379	368449	223648543	24.6374	3.4670	1.64745
608	1910.1	290333	369664	224755712	24.6577	3.4716	1.64474
609	1913.2	291289	370881	225866529	24.6779	3.4763	1.64204
610	1916.4	292247	372100	226981000	24.6982	3.4809	1.63934
611	1919.5	293206	373321	228099131	24.7184	3.4856	1.63666
612	1922.7	294166	374544	229220928	24.7386	3.4902	1.63399
613	1925.8	295128	375769	230346397	24.7588	3.4948	1.63132
614	1928.9	296092	376996	231475544	24.7790	3.4994	1.62866
615	1932.1	297057	378225	232608375	24.7992	3.5040	1.62602
616	1935.2	298024	379456	233744896	24.8193	3.5086	1.62338
617	1938.4	298992	380689	234885113	24.8395	3.5132	1.62075
618	1941.5	299962	381924	236029032	24.8596	3.5178	1.61812
619	1944.7	300934	383161	237176659	24.8797	3.5224	1.61551
620	1947.8	301907	384400	238328000	24.8998	3.5270	1.61290
621	1950.9	302882	385641	239483061	24.9199	3.5316	1.61031
622	1954.1	303858	386884	240641848	24.9399	3.5362	1.60772
623	1957.2	304836	388129	241804367	24.9600	3.5408	1.60514
624	1960.4	305815	389376	242970624	24.9800	3.5453	1.60256
625	1963.5	306796	390625	244140625	25.0000	3.5499	1.60000
626	1966.6	307779	391876	245314376	25.0200	3.5544	1.59744
627	1969.8	308763	393129	246491883	25.0400	3.5590	1.59490
628	1972.9	309748	394384	247673152	25.0599	3.5636	1.59236
629	1976.1	310736	395641	248858189	25.0799	3.5681	1.58983
630	1979.2	311725	396900	250047000	25.0998	3.5726	1.58730
631	1982.4	312715	398161	251239591	25.1197	3.5772	1.58479
632	1985.5	313707	399424	252435968	25.1396	3.5817	1.58228
633	1988.6	314700	400689	253636137	25.1595	3.5862	1.57978
634	1991.8	315696	401956	254840104	25.1794	3.5907	1.57729
635	1994.9	316692	403225	256047875	25.1992	3.5952	1.57480
636	1998.1	317690	404496	257259456	25.2190	3.5997	1.57233
637	2001.2	318690	405769	258474853	25.2389	3.6043	1.56986
638	2004.3	319692	407044	259694072	25.2587	3.6088	1.56740
639	2007.5	320695	408321	260917119	25.2784	3.6132	1.56495
640	2010.6	321699	409600	262144000	25.2982	3.6177	1.56250
641	2013.8	322705	410881	263374721	25.3180	3.6222	1.56006
642	2016.9	323713	412164	264609288	25.3377	3.6267	1.55763
643	2020.0	324722	413449	265847707	25.3574	3.6312	1.55521
644	2023.2	325733	414736	267089984	25.3772	3.6357	1.55280
645	2026.3	326745	416025	268336125	25.3969	3.6401	1.55039
646	2029.5	327759	417316	269586136	25.4165	3.6446	1.54799
647	2032.6	328775	418609	270840023	25.4362	3.6490	1.54560
648	2035.8	329792	419904	272097792	25.4558	3.6535	1.54321
649	2038.9	330810	421201	273359449	25.4755	3.6579	1.54083

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 × Reciprocal.
	Circum.	Area.					
650	2042.0	331831	422500	274825000	25.4981	8.6634	1.53245
651	2045.2	332853	423801	275894451	25.5147	8.6668	1.53610
652	2048.3	333876	425104	277167808	25.5343	8.6713	1.53374
653	2051.5	334901	426409	278445077	25.5539	8.6757	1.53139
654	2054.6	335927	427716	279726264	25.5734	8.6801	1.52905
655	2057.7	336955	429025	281011375	25.5930	8.6845	1.52672
656	2060.9	337985	430336	282300416	25.6125	8.6890	1.52439
657	2064.0	339016	431649	283593393	25.6320	8.6934	1.52207
658	2067.2	340049	432964	284890312	25.6515	8.6978	1.51976
659	2070.3	341084	434281	286191179	25.6710	8.7022	1.51745
660	2073.5	342119	435600	287496000	25.6905	8.7066	1.51515
661	2076.6	343157	436921	288804781	25.7099	8.7110	1.51286
662	2079.7	344196	438244	290117528	25.7294	8.7154	1.51057
663	2082.9	345237	439569	291434247	25.7488	8.7198	1.50830
664	2086.0	346279	440896	292754944	25.7682	8.7241	1.50602
665	2089.2	347323	442225	294079635	25.7876	8.7285	1.50376
666	2092.3	348368	443556	295408296	25.8070	8.7329	1.50150
667	2095.4	349415	444889	296740963	25.8263	8.7373	1.49925
668	2098.6	350464	446221	298077632	25.8457	8.7416	1.49701
669	2101.7	351514	447554	299418309	25.8650	8.7460	1.49477
670	2104.9	352565	448890	300763000	25.8844	8.7503	1.49254
671	2108.0	353618	450241	302111711	25.9037	8.7547	1.49031
672	2111.2	354673	451584	303464448	25.9230	8.7590	1.48810
673	2114.3	355730	452929	304821217	25.9422	8.7634	1.48588
674	2117.4	356788	454276	306182024	25.9615	8.7677	1.48368
675	2120.6	357847	455625	307546875	25.9808	8.7721	1.48148
676	2123.7	358908	456976	308915776	26.0000	8.7764	1.47929
677	2126.9	359971	458329	310288733	26.0192	8.7807	1.47711
678	2130.0	361035	459684	311665752	26.0384	8.7850	1.47493
679	2133.1	362101	461041	313046839	26.0576	8.7893	1.47275
680	2136.3	363168	462400	314432000	26.0768	8.7937	1.47059
681	2139.4	364237	463761	315821241	26.0960	8.7980	1.46843
682	2142.6	365308	465124	317214568	26.1151	8.8023	1.46628
683	2145.7	366380	466489	318611987	26.1343	8.8066	1.46413
684	2148.9	367453	467856	320013504	26.1534	8.8109	1.46199
685	2152.0	368528	469225	321419125	26.1725	8.8152	1.45985
686	2155.1	369605	470596	322828856	26.1916	8.8194	1.45773
687	2158.3	370684	471969	324242703	26.2107	8.8237	1.45560
688	2161.4	371764	473344	325660672	26.2298	8.8280	1.45349
689	2164.6	372845	474721	327082769	26.2488	8.8323	1.45138
690	2167.7	373928	476100	328509000	26.2679	8.8366	1.44928
691	2170.8	375013	477481	329939371	26.2869	8.8408	1.44718
692	2174.0	376099	478864	331373888	26.3059	8.8451	1.44509
693	2177.1	377187	480249	332812557	26.3249	8.8493	1.44300
694	2180.3	378276	481636	334255384	26.3439	8.8536	1.44092
695	2183.4	379367	483025	335703375	26.3629	8.8578	1.43885
696	2186.6	380459	484416	337153536	26.3818	8.8621	1.43678
697	2189.7	381554	485809	338608873	26.4008	8.8663	1.43472
698	2192.8	382649	487204	340068392	26.4197	8.8706	1.43267
699	2196.0	383746	488601	341532099	26.4386	8.8748	1.43062

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
700	1199.1	284845	490000	343000000	26.4875	8.8790	1.42887
701	2202.3	385945	491401	344472101	26.4764	8.8833	1.42853
702	2205.4	387047	492804	345048408	26.4953	8.8875	1.42450
703	2208.5	388151	494209	347428927	26.5141	8.8917	1.42248
704	2211.7	389256	495616	348913664	26.5330	8.8959	1.42046
705	2214.8	390363	497025	350408325	26.5518	8.9001	1.41844
706	2218.0	391471	498436	351895816	26.5707	8.9043	1.41643
707	2221.1	392580	499849	353393243	26.5895	8.9085	1.41443
708	2224.3	393692	501264	354894912	26.6083	8.9127	1.41243
709	2227.4	394805	502681	356400829	26.6271	8.9169	1.41044
710	2230.5	395919	504100	357911000	26.6458	8.9211	1.40845
711	2233.7	397035	505521	359425431	26.6646	8.9253	1.40647
712	2236.8	398153	506944	360944128	26.6833	8.9295	1.40449
713	2240.0	399272	508369	362467097	26.7021	8.9337	1.40253
714	2243.1	400393	509796	363994344	26.7208	8.9378	1.40056
715	2246.2	401515	511225	365525575	26.7395	8.9420	1.39860
716	2249.4	402639	512656	367061600	26.7582	8.9462	1.39665
717	2252.5	403765	514089	368601813	26.7769	8.9503	1.39470
718	2255.7	404892	515524	370146232	26.7955	8.9545	1.39276
719	2258.8	406020	516961	371694959	26.8142	8.9587	1.39082
720	2261.9	407150	518400	373248000	26.8328	8.9628	1.38889
721	2265.1	408282	519841	374805361	26.8514	8.9670	1.38696
722	2268.2	409416	521284	376367048	26.8701	8.9711	1.38504
723	2271.4	410550	522729	377933067	26.8887	8.9752	1.38313
724	2274.5	411687	524176	379503424	26.9072	8.9794	1.38122
725	2277.7	412825	525625	381078125	26.9258	8.9835	1.37931
726	2280.8	413965	527076	382657176	26.9444	8.9876	1.37741
727	2283.9	415106	528529	384240583	26.9629	8.9918	1.37552
728	2287.1	416248	529984	385828352	26.9815	8.9959	1.37363
729	2290.2	417393	531441	387420489	27.0000	9.0000	1.37174
730	2293.4	418539	532900	389017000	27.0185	9.0041	1.36985
731	2296.5	419688	534361	390617891	27.0370	9.0082	1.36799
732	2299.7	420835	535824	392223168	27.0555	9.0123	1.36612
733	2302.8	421986	537289	393833237	27.0740	9.0164	1.36426
734	2305.9	423138	538756	395446904	27.0924	9.0205	1.36240
735	2309.1	424293	540225	397065375	27.1109	9.0246	1.36054
736	2312.2	425448	541696	398688256	27.1293	9.0287	1.35870
737	2315.4	426604	543169	400315553	27.1477	9.0328	1.35685
738	2318.5	427762	544644	401947272	27.1662	9.0369	1.35501
739	2321.6	428922	546121	403583419	27.1846	9.0410	1.35318
740	2324.8	430084	547600	405224000	27.2029	9.0450	1.35135
741	2327.9	431247	549081	406869021	27.2213	9.0491	1.34953
742	2331.1	432412	550564	408518488	27.2397	9.0532	1.34771
743	2334.2	433578	552049	410172407	27.2580	9.0572	1.34590
744	2337.3	434746	553536	411830784	27.2764	9.0613	1.34409
745	2340.5	435916	555025	413493625	27.2947	9.0654	1.34228
746	2343.6	437087	556516	415160936	27.3130	9.0694	1.34048
747	2346.8	438259	558009	416832723	27.3313	9.0735	1.33869
748	2349.9	439433	559504	418508992	27.3496	9.0775	1.33690
749	2353.1	440609	561001	420189749	27.3679	9.0816	1.33511

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 × Reciprocal
	Circum.	Area.					
750	2356.2	441788	562500	421875000	27.3861	9.0856	1.33333
751	2359.3	442965	564001	423564751	27.4044	9.0896	1.33156
752	2362.5	444146	565504	425259008	27.4226	9.0937	1.32979
753	2365.6	445328	567009	426957777	27.4408	9.0977	1.32802
754	2368.8	446511	568516	428661084	27.4591	9.1017	1.32626
755	2371.9	447697	570025	430365875	27.4773	9.1057	1.32450
756	2375.0	448883	571536	432081216	27.4955	9.1098	1.32275
757	2378.2	450072	573049	433798093	27.5136	9.1138	1.32100
758	2381.3	451262	574564	435519512	27.5318	9.1178	1.31926
759	2384.5	452454	576081	437245479	27.5500	9.1218	1.31752
760	2387.6	453646	577600	438976000	27.5681	9.1258	1.31579
761	2390.8	454841	579121	440711081	27.5862	9.1298	1.31406
762	2393.9	456037	580644	442450728	27.6043	9.1338	1.31234
763	2397.0	457234	582169	444194947	27.6225	9.1378	1.31062
764	2400.2	458434	583696	445943744	27.6405	9.1418	1.30890
765	2403.3	459635	585225	447697125	27.6586	9.1458	1.30719
766	2406.5	460837	586756	449455096	27.6767	9.1498	1.30548
767	2409.6	462042	588289	451217663	27.6948	9.1537	1.30378
768	2412.7	463247	589824	452984832	27.7128	9.1577	1.30208
769	2415.9	464454	591361	454756609	27.7308	9.1617	1.30039
770	2419.0	465663	592900	456533000	27.7489	9.1657	1.29870
771	2422.2	466873	594441	458314011	27.7669	9.1696	1.29702
772	2425.3	468085	595984	460099648	27.7849	9.1736	1.29534
773	2428.5	469298	597529	461889917	27.8029	9.1775	1.29366
774	2431.6	470513	599076	463684824	27.8209	9.1815	1.29199
775	2434.7	471730	600625	465484375	27.8388	9.1855	1.29032
776	2437.9	472948	602176	467288576	27.8568	9.1894	1.28866
777	2441.0	474168	603729	469097433	27.8747	9.1933	1.28700
778	2444.2	475389	605284	470910952	27.8927	9.1973	1.28535
779	2447.3	476612	606841	472729139	27.9106	9.2012	1.28370
780	2450.4	477836	608400	474552000	27.9285	9.2052	1.28205
781	2453.6	479062	609961	476379541	27.9464	9.2091	1.28041
782	2456.7	480290	611524	478211768	27.9643	9.2130	1.27877
783	2459.9	481519	613089	480048687	27.9821	9.2170	1.27714
784	2463.0	482750	614656	481890304	28.0000	9.2209	1.27551
785	2466.2	483982	616225	483736625	28.0179	9.2248	1.27389
786	2469.3	485216	617796	485587656	28.0357	9.2287	1.27226
787	2472.4	486451	619369	487443403	28.0535	9.2326	1.27065
788	2475.6	487688	620944	489303872	28.0713	9.2365	1.26904
789	2478.7	488927	622521	491169069	28.0891	9.2404	1.26743
790	2481.9	490167	624100	493039000	28.1069	9.2443	1.26582
791	2485.0	491409	625681	494913671	28.1247	9.2482	1.26422
792	2488.1	492652	627264	496793088	28.1425	9.2521	1.26263
793	2491.3	493897	628849	498677257	28.1603	9.2560	1.26103
794	2494.4	495143	630436	500566184	28.1780	9.2599	1.25945
795	2497.6	496391	632025	502459875	28.1957	9.2638	1.25786
796	2500.7	497641	633616	504358336	28.2135	9.2677	1.25628
797	2503.8	498892	635209	506261573	28.2312	9.2716	1.25471
798	2507.0	500145	636804	508169592	28.2489	9.2754	1.25313
799	2510.1	501399	638401	510082399	28.2666	9.2793	1.25156

No.	No. - Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
800	2513.3	502655	640000	512000000	28.2843	9.2832	1.25000
801	2516.4	503912	641601	513922401	28.3019	9.2870	1.24844
802	2519.6	505171	643204	515849608	28.3196	9.2909	1.24688
803	2522.7	506432	644809	517781627	28.3373	9.2948	1.24533
804	2525.8	507694	646416	519718464	28.3549	9.2986	1.24378
805	2529.0	508958	648025	521660125	28.3725	9.3025	1.24224
806	2532.1	510223	649636	523606616	28.3901	9.3063	1.24069
807	2535.3	511490	651249	525557943	28.4077	9.3102	1.23916
808	2538.4	512758	652864	527514112	28.4253	9.3140	1.23762
809	2541.5	514028	654481	529475129	28.4429	9.3179	1.23609
810	2544.7	515300	656100	531441000	28.4605	9.3217	1.23457
811	2547.8	516573	657721	533411731	28.4781	9.3255	1.23305
812	2551.0	517848	659344	535387328	28.4956	9.3294	1.23153
813	2554.1	519124	660969	537367797	28.5132	9.3332	1.23001
814	2557.3	520402	662596	539353144	28.5307	9.3370	1.22850
815	2560.4	521681	664225	541343375	28.5482	9.3408	1.22699
816	2563.5	522962	665856	543338496	28.5657	9.3447	1.22549
817	2566.7	524245	667489	545338513	28.5832	9.3485	1.22399
818	2569.8	525529	669124	547343432	28.6007	9.3523	1.22249
819	2573.0	526814	670761	549353259	28.6182	9.3561	1.22100
820	2576.1	528102	672400	551368000	28.6356	9.3599	1.21951
821	2579.2	529391	674041	553387661	28.6531	9.3637	1.21803
822	2582.4	530681	675684	555412248	28.6705	9.3675	1.21655
823	2585.5	531973	677329	557441767	28.6880	9.3713	1.21507
824	2588.7	533267	678976	559476224	28.7054	9.3751	1.21359
825	2591.8	534562	680625	561515625	28.7228	9.3789	1.21212
826	2595.0	535858	682276	563559976	28.7402	9.3827	1.21065
827	2598.1	537157	683929	565609283	28.7576	9.3865	1.20919
828	2601.2	538456	685584	567663552	28.7750	9.3902	1.20773
829	2604.4	539758	687241	569722789	28.7924	9.3940	1.20627
830	2607.5	541061	688900	571787000	28.8097	9.3978	1.20482
831	2610.7	542365	690561	573856191	28.8271	9.4016	1.20337
832	2613.8	543671	692224	575930368	28.8444	9.4053	1.20192
833	2616.9	544979	693889	578009537	28.8617	9.4091	1.20048
834	2620.1	546288	695556	580093704	28.8791	9.4129	1.19904
835	2623.2	547599	697225	582182875	28.8964	9.4166	1.19760
836	2626.4	548912	698896	584277056	28.9137	9.4204	1.19617
837	2629.5	550226	700569	586376253	28.9310	9.4241	1.19474
838	2632.7	551541	702244	588480472	28.9482	9.4279	1.19332
839	2635.8	552858	703921	590589719	28.9655	9.4316	1.19189
840	2638.9	554177	705600	592704000	28.9828	9.4354	1.19048
841	2642.1	555497	707281	594823321	29.0000	9.4391	1.18906
842	2645.2	556819	708964	596947688	29.0172	9.4429	1.18765
843	2648.4	558142	710649	599077107	29.0345	9.4466	1.18624
844	2651.5	559467	712336	601211584	29.0517	9.4503	1.18483
845	2654.6	560794	714025	603351125	29.0689	9.4541	1.18343
846	2657.8	562122	715716	605495736	29.0861	9.4578	1.18203
847	2660.9	563452	717409	607645423	29.1033	9.4615	1.18064
848	2664.1	564783	719104	609800192	29.1204	9.4652	1.17925
849	2667.2	566116	720801	611960049	29.1376	9.4690	1.17786

No.	No. = Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 × Reciprocals
	Circum.	Area.					
880	2670.4	567459	732599	614125000	29.1543	9.4727	1.17647
881	2673.5	568786	724201	616295501	29.1719	9.4764	1.17609
882	2676.6	570124	725904	618470208	29.1890	9.4801	1.17371
883	2679.8	571463	727609	620650477	29.2062	9.4838	1.17233
884	2682.9	572803	729316	622835864	29.2233	9.4875	1.17096
885	2686.1	574144	731025	625026375	29.2404	9.4912	1.16959
886	2689.2	575490	732736	627222016	29.2575	9.4949	1.16822
887	2692.3	576835	734449	629422793	29.2746	9.4986	1.16686
888	2695.5	578182	736164	631628712	29.2916	9.5023	1.16650
889	2698.6	579530	737881	633839779	29.3087	9.5060	1.16414
890	2701.8	580880	739600	636056000	29.3258	9.5097	1.16379
891	2704.9	582232	741321	638277381	29.3428	9.5134	1.16144
892	2708.1	583585	743044	640503928	29.3598	9.5171	1.16009
893	2711.2	584940	744769	642735647	29.3769	9.5207	1.15875
894	2714.3	586297	746496	644972544	29.3939	9.5244	1.15741
895	2717.5	587655	748225	647214625	29.4109	9.5281	1.15607
896	2720.6	589014	749956	649461896	29.4279	9.5317	1.15473
897	2723.8	590375	751689	651714363	29.4449	9.5354	1.15340
898	2726.9	591738	753424	653972032	29.4618	9.5391	1.15207
899	2730.0	593102	755161	656234909	29.4788	9.5427	1.15075
870	2733.2	594468	756900	658503000	29.4958	9.5464	1.14943
871	2736.3	595835	758641	660776311	29.5127	9.5501	1.14811
872	2739.5	597204	760384	663054848	29.5296	9.5537	1.14679
873	2742.6	598575	762129	665338617	29.5466	9.5574	1.14548
874	2745.8	599947	763876	667627624	29.5635	9.5610	1.14416
875	2748.9	601320	765625	669921875	29.5804	9.5647	1.14286
876	2752.0	602696	767376	672221376	29.5973	9.5683	1.14155
877	2755.2	604073	769129	674526133	29.6142	9.5719	1.14025
878	2758.3	605451	770884	676836152	29.6311	9.5756	1.13895
879	2761.5	606831	772641	679151439	29.6479	9.5792	1.13766
880	2764.6	608212	774400	681472000	29.6648	9.5828	1.13636
881	2767.7	609595	776161	683797841	29.6816	9.5865	1.13507
882	2770.9	610980	777924	686128968	29.6985	9.5901	1.13379
883	2774.0	612366	779689	688465387	29.7153	9.5937	1.13250
884	2777.2	613754	781456	690807104	29.7321	9.5973	1.13122
885	2780.3	615143	783225	693154125	29.7489	9.6010	1.12994
886	2783.5	616534	784996	695506466	29.7658	9.6046	1.12867
887	2786.6	617927	786769	697864103	29.7825	9.6082	1.12740
888	2789.7	619321	788544	700227072	29.7993	9.6118	1.12613
889	2792.9	620717	790321	702595369	29.8161	9.6154	1.12486
890	2796.0	622114	792100	704969000	29.8329	9.6190	1.12360
891	2799.2	623513	793881	707347971	29.8496	9.6226	1.12233
892	2802.3	624913	795664	709732288	29.8664	9.6262	1.12108
893	2805.4	626315	797449	712121967	29.8831	9.6298	1.11982
894	2808.6	627718	799236	714516984	29.8998	9.6334	1.11857
895	2811.7	629124	801025	716917375	29.9166	9.6370	1.11732
896	2814.9	630530	802816	719323136	29.9333	9.6406	1.11607
897	2818.0	631938	804609	721734273	29.9500	9.6442	1.11483
898	2821.2	633348	806404	724150792	29.9666	9.6477	1.11359
899	2824.3	634760	808201	726572699	29.9833	9.6513	1.11235

18 CIRCUMFERENCES, AREAS, SQUARES, CUBES, SQUARE ROOTS.

No.	No. — Diam.		Square.	Cube.	Square Root.	Cube Root.	1000 X Reciprocals
	Circum.	Area.					
900	2227.4	636172	810000	729000000	29.0000	9.6540	1.1111
901	2230.6	637587	811801	731432701	30.0167	9.6585	1.10988
902	2233.7	639003	813604	733870608	30.0333	9.6620	1.10865
903	2236.9	640421	815409	736314327	30.0500	9.6656	1.10742
904	2240.0	641840	817216	738763264	30.0666	9.6692	1.10619
905	2243.1	643261	819025	741217625	30.0832	9.6727	1.10497
906	2246.3	644683	820836	743677416	30.0998	9.6763	1.10375
907	2249.4	646107	822649	746142643	30.1164	9.6799	1.10254
908	2252.6	647533	824464	748613312	30.1330	9.6834	1.10132
909	2255.7	648960	826281	751089429	30.1496	9.6870	1.10011
910	2258.8	650388	828100	753571000	30.1662	9.6906	1.09890
911	2262.0	651818	829921	756058031	30.1828	9.6941	1.09769
912	2265.1	653250	831744	758550528	30.1993	9.6976	1.09649
913	2268.3	654684	833569	761048497	30.2159	9.7012	1.09529
914	2271.4	656118	835396	763551944	30.2324	9.7047	1.09409
915	2274.6	657555	837225	766060675	30.2490	9.7082	1.09290
916	2277.7	658993	839056	768575296	30.2655	9.7118	1.09170
917	2280.8	660433	840889	771095213	30.2820	9.7153	1.09051
918	2284.0	661874	842724	773620632	30.2985	9.7188	1.08932
919	2287.1	663317	844561	776151559	30.3150	9.7224	1.08814
920	2290.3	664761	846400	778682000	30.3315	9.7259	1.08696
921	2293.4	666207	848241	781222961	30.3480	9.7294	1.08578
922	2296.5	667654	850084	783777448	30.3645	9.7329	1.08460
923	2299.7	669103	851929	786330467	30.3809	9.7364	1.08342
924	2302.8	670554	853776	788889024	30.3974	9.7400	1.08225
925	2306.0	672006	855625	791453125	30.4138	9.7435	1.08108
926	2309.1	673460	857476	794022776	30.4302	9.7470	1.07991
927	2312.3	674915	859329	796597983	30.4467	9.7505	1.07875
928	2315.4	676372	861184	799178752	30.4631	9.7540	1.07759
929	2318.5	677831	863041	801765089	30.4795	9.7575	1.07643
930	2321.7	679291	864900	804357000	30.4959	9.7610	1.07527
931	2324.8	680752	866761	806954491	30.5123	9.7645	1.07411
932	2328.0	682216	868624	809557568	30.5287	9.7680	1.07296
933	2331.1	683680	870489	812166237	30.5450	9.7715	1.07181
934	2334.2	685147	872356	814780504	30.5614	9.7750	1.07066
935	2337.4	686615	874225	817400375	30.5778	9.7785	1.06952
936	2340.5	688084	876096	820025856	30.5941	9.7819	1.06838
937	2343.7	689555	877969	822656953	30.6105	9.7854	1.06724
938	2346.8	691028	879844	825293672	30.6268	9.7889	1.06610
939	2350.0	692502	881721	827936019	30.6431	9.7924	1.06496
940	2353.1	693978	883600	830584000	30.6594	9.7959	1.06383
941	2356.2	695455	885481	833237621	30.6757	9.7993	1.06270
942	2359.4	696934	887364	835896888	30.6920	9.8028	1.06157
943	2362.5	698415	889249	838561807	30.7083	9.8063	1.06045
944	2365.7	699897	891136	841232384	30.7246	9.8097	1.05932
945	2368.8	701380	893025	843908625	30.7409	9.8132	1.05820
946	2371.9	702865	894916	846590536	30.7571	9.8167	1.05708
947	2375.1	704352	896809	849278123	30.7734	9.8201	1.05597
948	2378.2	705840	898704	851971392	30.7896	9.8236	1.05485
949	2381.4	707330	900601	854670349	30.8058	9.8270	1.05374

No.	No. - Diam.		Square	Cube	Square Root	Cube Root	1000 \ Reciprocal
	Circum.	Area.					
950	2981.5	708222	902500	897375000	30.8321	9.8308	1.03263
951	2987.7	710315	904401	860085351	30.8383	9.8339	1.03152
952	2990.8	711809	906304	862801408	30.8545	9.8374	1.03042
953	2993.9	713306	908209	865523177	30.8707	9.8408	1.02932
954	2997.1	714803	910116	868250064	30.8869	9.8443	1.02822
955	3000.2	716303	912025	870963375	30.9031	9.8477	1.02712
956	3003.4	717804	913936	873722816	30.9192	9.8511	1.02603
957	3006.5	719306	915849	876467493	30.9354	9.8546	1.02493
958	3009.6	720810	917764	879217912	30.9516	9.8580	1.02384
959	3012.8	722316	919681	881974079	30.9677	9.8614	1.02275
960	3015.9	723823	921600	884736000	30.9839	9.8648	1.02167
961	3019.1	725332	923521	887503681	31.0000	9.8683	1.02058
962	3022.2	726842	925444	890277128	31.0161	9.8717	1.01950
963	3025.4	728354	927369	893056347	31.0322	9.8751	1.01842
964	3028.5	729867	929296	895841344	31.0483	9.8785	1.01734
965	3031.6	731382	931225	898632128	31.0644	9.8819	1.01627
966	3034.8	732899	933156	901428696	31.0805	9.8854	1.01520
967	3037.9	734417	935089	904231063	31.0966	9.8888	1.01413
968	3041.1	735937	937024	907039232	31.1127	9.8922	1.01306
969	3044.2	737458	938961	909853209	31.1288	9.8956	1.01199
970	3047.3	738981	940900	912673000	31.1448	9.8990	1.01092
971	3050.5	740506	942841	915498611	31.1609	9.9024	1.00985
972	3053.6	742032	944784	918330048	31.1769	9.9058	1.00878
973	3056.8	743559	946729	921167317	31.1929	9.9092	1.00771
974	3059.9	745088	948676	924010424	31.2090	9.9126	1.00664
975	3063.1	746619	950625	926859375	31.2250	9.9160	1.00557
976	3066.2	748151	952576	929714176	31.2410	9.9194	1.00450
977	3069.3	749685	954529	932574833	31.2570	9.9227	1.00343
978	3072.5	751221	956484	935441352	31.2730	9.9261	1.00236
979	3075.6	752758	958441	938313739	31.2890	9.9295	1.00129
980	3078.8	754296	960400	941192000	31.3050	9.9329	1.00022
981	3081.9	755837	962361	944076141	31.3209	9.9363	1.01917
982	3085.0	757378	964324	946966168	31.3369	9.9396	1.01813
983	3088.2	758922	966289	949862087	31.3528	9.9430	1.01709
984	3091.3	760466	968256	952763904	31.3688	9.9464	1.01606
985	3094.5	762013	970225	955671625	31.3847	9.9497	1.01503
986	3097.6	763561	972196	958585266	31.4006	9.9531	1.01400
987	3100.8	765111	974169	961504803	31.4166	9.9565	1.01297
988	3103.9	766662	976144	964430272	31.4325	9.9598	1.01194
989	3107.0	768214	978121	967361669	31.4484	9.9632	1.01091
990	3110.2	769769	980100	970299000	31.4643	9.9666	1.01010
991	3113.3	771325	982081	973242271	31.4802	9.9699	1.00908
992	3116.5	772882	984064	976191488	31.4960	9.9733	1.00806
993	3119.6	774441	986049	979146657	31.5119	9.9766	1.00705
994	3122.7	776002	988036	982107784	31.5278	9.9800	1.00604
995	3125.9	777564	990025	985074875	31.5436	9.9833	1.00503
996	3129.0	779128	992016	988047936	31.5595	9.9866	1.00402
997	3132.2	780693	994009	991026973	31.5753	9.9900	1.00301
998	3135.3	782260	996004	994011992	31.5911	9.9933	1.00200
999	3138.5	783828	998001	997002999	31.6070	9.9967	1.00100



## LENGTHS OF ARCS FOR RADIUS 1

DEGREES					MINUTES		SECONDS		
0°	0.000000	60°	1.047198	120°	2.094395	0'	0.000000	0°	0.000000
1	0.017453	61	1.064651	121	2.111848	1	0.000291	1	0.000005
2	0.034907	62	1.082104	122	2.129302	2	0.000582	2	0.000010
3	0.052360	63	1.099557	123	2.146755	3	0.000873	3	0.000015
4	0.069813	64	1.117011	124	2.164208	4	0.001164	4	0.000019
5	0.087266	65	1.134464	125	2.181662	5	0.001454	5	0.000024
6	0.104720	66	1.151917	126	2.199115	6	0.001745	6	0.000029
7	0.122173	67	1.169371	127	2.216568	7	0.002036	7	0.000034
8	0.139626	68	1.186824	128	2.234021	8	0.002327	8	0.000039
9	0.157080	69	1.204277	129	2.251475	9	0.002618	9	0.000044
10	0.174533	70	1.221730	130	2.268928	10	0.002909	10	0.000048
11	0.191986	71	1.239184	131	2.286381	11	0.003200	11	0.000053
12	0.209440	72	1.256637	132	2.303835	12	0.003491	12	0.000058
13	0.226893	73	1.274090	133	2.321288	13	0.003782	13	0.000063
14	0.244346	74	1.291544	134	2.338741	14	0.004072	14	0.000068
15	0.261799	75	1.308997	135	2.356194	15	0.004363	15	0.000073
16	0.279253	76	1.326450	136	2.373648	16	0.004654	16	0.000078
17	0.296706	77	1.343904	137	2.391101	17	0.004945	17	0.000082
18	0.314159	78	1.361357	138	2.408554	18	0.005236	18	0.000087
19	0.331613	79	1.378810	139	2.426008	19	0.005527	19	0.000092
20	0.349066	80	1.396263	140	2.443461	20	0.005818	20	0.000097
21	0.366519	81	1.413717	141	2.460914	21	0.006109	21	0.000102
22	0.383972	82	1.431170	142	2.478368	22	0.006400	22	0.000107
23	0.401426	83	1.448623	143	2.495821	23	0.006690	23	0.000112
24	0.418879	84	1.466077	144	2.513274	24	0.006981	24	0.000116
25	0.436332	85	1.483530	145	2.530727	25	0.007272	25	0.000121
26	0.453786	86	1.500983	146	2.548181	26	0.007563	26	0.000126
27	0.471239	87	1.518436	147	2.565634	27	0.007854	27	0.000131
28	0.488692	88	1.535890	148	2.583087	28	0.008145	28	0.000136
29	0.506145	89	1.553343	149	2.600541	29	0.008436	29	0.000141
30	0.523599	90	1.570796	150	2.617994	30	0.008727	30	0.000145
31	0.541052	91	1.588250	151	2.635447	31	0.009018	31	0.000150
32	0.558505	92	1.605703	152	2.652900	32	0.009308	32	0.000155
33	0.575959	93	1.623156	153	2.670354	33	0.009599	33	0.000160
34	0.593412	94	1.640609	154	2.687807	34	0.009890	34	0.000165
35	0.610865	95	1.658063	155	2.705260	35	0.010181	35	0.000170
36	0.628319	96	1.675516	156	2.722714	36	0.010472	36	0.000175
37	0.645772	97	1.692969	157	2.740167	37	0.010763	37	0.000179
38	0.663225	98	1.710423	158	2.757620	38	0.011054	38	0.000184
39	0.680678	99	1.727876	159	2.775074	39	0.011345	39	0.000189
40	0.698132	100	1.745329	160	2.792527	40	0.011636	40	0.000194
41	0.715585	101	1.762783	161	2.809980	41	0.011926	41	0.000199
42	0.733038	102	1.780236	162	2.827433	42	0.012217	42	0.000204
43	0.750492	103	1.797689	163	2.844887	43	0.012508	43	0.000208
44	0.767945	104	1.815142	164	2.862340	44	0.012799	44	0.000213
45	0.785398	105	1.832596	165	2.879793	45	0.013090	45	0.000218
46	0.802851	106	1.850049	166	2.897247	46	0.013381	46	0.000223
47	0.820305	107	1.867502	167	2.914700	47	0.013672	47	0.000228
48	0.837758	108	1.884956	168	2.932153	48	0.013963	48	0.000233
49	0.855211	109	1.902409	169	2.949606	49	0.014254	49	0.000238
50	0.872665	110	1.919862	170	2.967060	50	0.014544	50	0.000242
51	0.890118	111	1.937315	171	2.984513	51	0.014835	51	0.000247
52	0.907571	112	1.954769	172	3.001966	52	0.015126	52	0.000252
53	0.925025	113	1.972222	173	3.019420	53	0.015417	53	0.000257
54	0.942478	114	1.989675	174	3.036873	54	0.015708	54	0.000262
55	0.959931	115	2.007129	175	3.054326	55	0.015999	55	0.000267
56	0.977384	116	2.024582	176	3.071779	56	0.016290	56	0.000271
57	0.994838	117	2.042035	177	3.089233	57	0.016581	57	0.000276
58	1.012291	118	2.059489	178	3.106686	58	0.016872	58	0.000281
59	1.029744	119	2.076942	179	3.124139	59	0.017162	59	0.000286
60	1.047198	120	2.094395	180	3.141593	60	0.017453	60	0.000291

# AREAS AND CIRCUMFERENCES OF CIRCLES FOR DIAMETERS IN UNITS AND FRACTIONS

171

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
0			1	0.78540	3.14159	3	7.0686	9.42478
$\frac{1}{16}$	0.00077	0.098175	$\frac{1}{16}$	0.88664	3.33794	$\frac{1}{16}$	7.3622	9.62113
$\frac{1}{8}$	0.00307	0.196350	$\frac{1}{8}$	0.99402	3.53429	$\frac{1}{8}$	7.6699	9.81748
$\frac{3}{16}$	0.00690	0.294524	$\frac{3}{16}$	1.1075	3.73064	$\frac{3}{16}$	7.9769	10.0138
$\frac{1}{4}$	0.01227	0.392699	$\frac{1}{4}$	1.2272	3.92699	$\frac{1}{4}$	8.2958	10.2102
$\frac{5}{16}$	0.01917	0.490874	$\frac{5}{16}$	1.3530	4.12334	$\frac{5}{16}$	8.6179	10.4065
$\frac{3}{8}$	0.02161	0.589049	$\frac{3}{8}$	1.4849	4.31969	$\frac{3}{8}$	8.9462	10.6029
$\frac{7}{16}$	0.03758	0.687223	$\frac{7}{16}$	1.6230	4.51604	$\frac{7}{16}$	9.2806	10.7992
$\frac{1}{2}$	0.04909	0.785398	$\frac{1}{2}$	1.7671	4.71239	$\frac{1}{2}$	9.6211	10.9956
$\frac{9}{16}$	0.06213	0.883573	$\frac{9}{16}$	1.9175	4.90874	$\frac{9}{16}$	9.9678	11.1919
$\frac{5}{8}$	0.07670	0.981748	$\frac{5}{8}$	2.0739	5.10509	$\frac{5}{8}$	10.321	11.3883
$\frac{11}{16}$	0.09281	1.07992	$\frac{11}{16}$	2.2365	5.30144	$\frac{11}{16}$	10.680	11.5846
$\frac{3}{4}$	0.11045	1.17810	$\frac{3}{4}$	2.4053	5.49779	$\frac{3}{4}$	11.045	11.7810
$\frac{13}{16}$	0.12962	1.27627	$\frac{13}{16}$	2.5802	5.69414	$\frac{13}{16}$	11.416	11.9773
$\frac{7}{8}$	0.15033	1.37445	$\frac{7}{8}$	2.7612	5.89049	$\frac{7}{8}$	11.793	12.1737
$\frac{15}{16}$	0.17257	1.47262	$\frac{15}{16}$	2.9483	6.08684	$\frac{15}{16}$	12.177	12.3700
$\frac{1}{2}$	0.19635	1.57080	2	3.1416	6.28319	4	12.566	12.5664
$\frac{17}{16}$	0.12166	1.66897	$\frac{1}{16}$	3.3410	6.47953	$\frac{1}{16}$	12.962	12.7627
$\frac{9}{8}$	0.24850	1.76715	$\frac{1}{8}$	3.5466	6.67588	$\frac{1}{8}$	13.364	12.9591
$\frac{19}{16}$	0.27688	1.86532	$\frac{1}{16}$	3.7583	6.87223	$\frac{1}{16}$	13.772	13.1554
$\frac{5}{8}$	0.30680	1.96350	$\frac{1}{4}$	3.9761	7.06858	$\frac{1}{4}$	14.186	13.3518
$\frac{21}{16}$	0.33824	2.06167	$\frac{5}{16}$	4.2000	7.26493	$\frac{5}{16}$	14.607	13.5481
$\frac{11}{8}$	0.37122	2.15984	$\frac{3}{8}$	4.4301	7.46128	$\frac{3}{8}$	15.033	13.7445
$\frac{23}{16}$	0.40574	2.25802	$\frac{1}{16}$	4.6664	7.65763	$\frac{1}{16}$	15.466	13.9408
$\frac{3}{4}$	0.44179	2.35619	$\frac{1}{2}$	4.9087	7.85398	$\frac{1}{2}$	15.904	14.1372
$\frac{25}{16}$	0.47937	2.45437	$\frac{5}{16}$	5.1572	8.05033	$\frac{5}{16}$	16.349	14.3335
$\frac{13}{8}$	0.51849	2.55254	$\frac{3}{8}$	5.4119	8.24668	$\frac{3}{8}$	16.800	14.5299
$\frac{27}{16}$	0.55914	2.65072	$\frac{11}{16}$	5.6727	8.44303	$\frac{11}{16}$	17.257	14.7262
$\frac{7}{8}$	0.60132	2.74889	$\frac{3}{4}$	5.9396	8.63938	$\frac{3}{4}$	17.721	14.9226
$\frac{29}{16}$	0.64504	2.84707	$\frac{13}{16}$	6.2126	8.83573	$\frac{13}{16}$	18.190	15.1189
$\frac{15}{8}$	0.69029	2.94524	$\frac{7}{8}$	6.4918	9.03208	$\frac{7}{8}$	18.665	15.3153
$\frac{31}{16}$	0.73708	3.04342	$\frac{15}{16}$	6.7771	9.22843	$\frac{15}{16}$	19.147	15.5116

# AREAS AND CIRCUMFERENCES OF CIRCLES FOR DIAMETERS IN UNITS AND FRACTIONS

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
5	19.635	15.7080	7	38.485	21.9911	10	78.540	31.4159
$\frac{1}{16}$	20.129	15.9043	$\frac{1}{16}$	39.175	22.1876	$\frac{1}{16}$	80.516	31.8086
$\frac{1}{8}$	20.629	16.1007	$\frac{1}{8}$	39.871	22.3838	$\frac{1}{8}$	82.516	32.2013
$\frac{3}{16}$	21.135	16.2970	$\frac{3}{16}$	40.574	22.5803	$\frac{3}{16}$	84.541	32.5940
$\frac{1}{4}$	21.648	16.4953	$\frac{1}{4}$	41.282	22.7765	$\frac{1}{2}$	86.590	32.9867
$\frac{5}{16}$	22.166	16.6897	$\frac{5}{16}$	41.997	22.9730	$\frac{5}{8}$	88.664	33.3794
$\frac{3}{8}$	22.691	16.8861	$\frac{3}{8}$	42.718	23.1692	$\frac{3}{4}$	90.763	33.7721
$\frac{7}{16}$	23.221	17.0824	$\frac{7}{16}$	43.446	23.3657	$\frac{7}{8}$	92.886	34.1648
$\frac{1}{2}$	23.758	17.2788	$\frac{1}{2}$	44.179	23.5619	11	95.033	34.5575
$\frac{9}{16}$	24.301	17.4751	$\frac{9}{16}$	44.918	23.7584	$\frac{1}{8}$	97.205	34.9502
$\frac{5}{8}$	24.850	17.6715	$\frac{5}{8}$	45.664	23.9546	$\frac{1}{4}$	99.402	35.3429
$\frac{11}{16}$	25.406	17.8678	$\frac{11}{16}$	46.415	24.1511	$\frac{3}{8}$	101.62	35.7356
$\frac{3}{4}$	25.967	18.0642	$\frac{3}{4}$	47.173	24.3473	$\frac{1}{2}$	103.87	36.1283
$\frac{13}{16}$	26.535	18.2605	$\frac{13}{16}$	47.937	24.5428	$\frac{5}{8}$	106.14	36.5210
$\frac{7}{8}$	27.109	18.4569	$\frac{7}{8}$	48.707	24.7400	$\frac{3}{4}$	108.43	36.9137
$\frac{15}{16}$	27.688	18.6532	$\frac{15}{16}$	49.483	23.9365	$\frac{7}{8}$	110.75	37.3064
6	28.274	18.8496	8	50.265	25.1327	12	113.10	37.6991
$\frac{1}{16}$	28.867	19.0460	$\frac{1}{16}$	51.849	25.5224	$\frac{1}{8}$	115.47	38.0918
$\frac{1}{8}$	29.465	19.2423	$\frac{1}{8}$	53.456	25.9181	$\frac{1}{4}$	117.86	38.4845
$\frac{3}{16}$	30.069	19.4387	$\frac{3}{8}$	55.088	26.3108	$\frac{3}{8}$	120.28	38.8772
$\frac{1}{4}$	30.680	19.6350	$\frac{1}{2}$	56.745	26.7035	$\frac{1}{2}$	122.72	39.2699
$\frac{5}{16}$	31.296	19.8314	$\frac{5}{8}$	58.426	27.0962	$\frac{5}{8}$	125.19	39.6626
$\frac{3}{8}$	31.919	20.0277	$\frac{3}{4}$	60.132	27.4889	$\frac{3}{4}$	127.68	40.0553
$\frac{7}{16}$	32.548	20.2241	$\frac{7}{8}$	61.862	27.8816	$\frac{7}{8}$	130.19	40.4480
$\frac{1}{2}$	33.183	20.4204	9	63.617	28.2743	13	132.73	40.8407
$\frac{9}{16}$	34.824	20.6168	$\frac{1}{8}$	65.397	28.6670	$\frac{1}{8}$	135.30	41.2334
$\frac{5}{8}$	34.472	20.8131	$\frac{1}{4}$	67.201	29.0597	$\frac{1}{4}$	137.89	41.6261
$\frac{11}{16}$	35.125	21.0095	$\frac{3}{8}$	69.029	29.4524	$\frac{3}{8}$	140.50	42.0188
$\frac{3}{4}$	35.785	21.2058	$\frac{1}{2}$	70.882	29.8451	$\frac{1}{2}$	143.14	42.4115
$\frac{13}{16}$	36.451	21.4022	$\frac{5}{8}$	72.760	30.2378	$\frac{5}{8}$	145.80	42.8042
$\frac{7}{8}$	37.122	21.5984	$\frac{3}{4}$	74.662	30.6305	$\frac{3}{4}$	148.49	43.1969
$\frac{15}{16}$	37.800	21.7949	$\frac{7}{8}$	76.589	31.0232	$\frac{7}{8}$	151.20	43.5896

**AREAS AND CIRCUMFERENCES OF CIRCLES  
FOR DIAMETERS IN UNITS AND FRACTIONS**

173

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
14	153.94	43.9823	18	254.47	56.5487	22	380.13	69.1150
$\frac{1}{8}$	156.70	44.3750	$\frac{1}{8}$	258.02	56.9414	$\frac{1}{8}$	384.46	69.5077
$\frac{1}{4}$	159.48	44.7677	$\frac{1}{4}$	261.59	57.3341	$\frac{1}{4}$	388.82	69.9004
$\frac{3}{8}$	162.30	45.1604	$\frac{3}{8}$	265.18	57.7268	$\frac{3}{8}$	393.20	70.2931
$\frac{1}{2}$	165.13	45.5531	$\frac{1}{2}$	268.80	58.1195	$\frac{1}{2}$	397.61	70.6858
$\frac{5}{8}$	167.99	45.9458	$\frac{5}{8}$	272.45	58.5122	$\frac{5}{8}$	402.04	71.0785
$\frac{3}{4}$	170.87	46.3385	$\frac{3}{4}$	276.12	58.9049	$\frac{3}{4}$	406.49	71.4712
$\frac{7}{8}$	173.78	46.7312	$\frac{7}{8}$	279.81	59.2976	$\frac{7}{8}$	410.97	71.8639
15	176.71	47.1239	19	283.53	59.6903	23	415.48	72.2566
$\frac{1}{8}$	179.67	47.5166	$\frac{1}{8}$	287.27	60.0830	$\frac{1}{8}$	420.00	72.6493
$\frac{1}{4}$	182.65	47.9093	$\frac{1}{4}$	291.04	60.4757	$\frac{1}{4}$	424.56	73.0420
$\frac{3}{8}$	185.66	48.3020	$\frac{3}{8}$	294.83	60.8684	$\frac{3}{8}$	429.13	73.4347
$\frac{1}{2}$	188.69	48.6947	$\frac{1}{2}$	298.65	61.2611	$\frac{1}{2}$	433.74	73.8274
$\frac{5}{8}$	191.75	49.0874	$\frac{5}{8}$	302.49	61.6538	$\frac{5}{8}$	438.36	74.2201
$\frac{3}{4}$	194.83	49.4801	$\frac{3}{4}$	306.35	62.0465	$\frac{3}{4}$	443.01	74.6128
$\frac{7}{8}$	197.93	49.8728	$\frac{7}{8}$	310.24	62.4392	$\frac{7}{8}$	447.69	75.0055
16	201.06	50.2655	20	314.16	62.8319	24	452.39	75.3982
$\frac{1}{8}$	204.22	50.6582	$\frac{1}{8}$	318.10	63.2246	$\frac{1}{8}$	457.11	75.7909
$\frac{1}{4}$	207.39	51.0509	$\frac{1}{4}$	322.06	63.6173	$\frac{1}{4}$	461.86	76.1836
$\frac{3}{8}$	210.60	51.4436	$\frac{3}{8}$	326.05	64.0100	$\frac{3}{8}$	466.64	76.5763
$\frac{1}{2}$	213.82	51.8363	$\frac{1}{2}$	330.06	64.4026	$\frac{1}{2}$	471.44	76.9690
$\frac{5}{8}$	217.08	52.2290	$\frac{5}{8}$	334.10	64.7953	$\frac{5}{8}$	476.26	77.3617
$\frac{3}{4}$	220.35	52.6217	$\frac{3}{4}$	338.16	65.1880	$\frac{3}{4}$	481.11	77.7544
$\frac{7}{8}$	223.65	53.0144	$\frac{7}{8}$	342.25	65.5807	$\frac{7}{8}$	485.98	78.1471
17	226.98	53.4071	21	346.36	65.9734	25	490.87	78.5398
$\frac{1}{8}$	230.33	53.7998	$\frac{1}{8}$	350.50	66.3661	$\frac{1}{8}$	495.79	78.9325
$\frac{1}{4}$	233.71	54.1925	$\frac{1}{4}$	354.66	66.7588	$\frac{1}{4}$	500.74	79.3252
$\frac{3}{8}$	237.10	54.5852	$\frac{3}{8}$	358.84	67.1515	$\frac{3}{8}$	505.71	79.7179
$\frac{1}{2}$	240.53	54.9779	$\frac{1}{2}$	363.05	67.5442	$\frac{1}{2}$	510.71	80.1105
$\frac{5}{8}$	243.98	55.3706	$\frac{5}{8}$	367.28	67.9369	$\frac{5}{8}$	515.72	80.5033
$\frac{3}{4}$	247.45	55.7633	$\frac{3}{4}$	371.54	68.3296	$\frac{3}{4}$	520.77	80.8960
$\frac{7}{8}$	250.95	56.1560	$\frac{7}{8}$	375.83	68.7223	$\frac{7}{8}$	525.84	81.2887

# AREAS AND CIRCUMFERENCES OF CIRCLES FOR DIAMETERS IN UNITS AND FRACTIONS

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
26	530.93	81.6814	30	706.86	94.2478	34	907.92	106.814
$\frac{1}{8}$	536.05	82.0741	$\frac{1}{8}$	712.76	94.6405	$\frac{1}{8}$	914.61	107.207
$\frac{1}{4}$	541.19	82.4668	$\frac{1}{4}$	718.69	95.0332	$\frac{1}{4}$	921.32	107.600
$\frac{3}{8}$	546.35	82.8595	$\frac{3}{8}$	724.64	95.4259	$\frac{3}{8}$	928.06	107.992
$\frac{1}{2}$	551.55	83.2522	$\frac{1}{2}$	730.62	95.8186	$\frac{1}{2}$	934.82	108.385
$\frac{5}{8}$	556.76	83.6449	$\frac{5}{8}$	736.62	96.2113	$\frac{5}{8}$	941.61	108.788
$\frac{3}{4}$	562.00	84.0376	$\frac{3}{4}$	742.64	96.6040	$\frac{3}{4}$	948.42	109.170
$\frac{7}{8}$	567.27	84.4303	$\frac{7}{8}$	748.69	96.9967	$\frac{7}{8}$	955.25	109.563
27	572.56	84.8230	31	754.77	97.3894	35	962.11	109.956
$\frac{1}{8}$	577.87	85.2157	$\frac{1}{8}$	760.87	97.7821	$\frac{1}{8}$	969.00	110.348
$\frac{1}{4}$	583.21	85.6084	$\frac{1}{4}$	766.99	98.1748	$\frac{1}{4}$	975.91	110.741
$\frac{3}{8}$	588.57	86.0011	$\frac{3}{8}$	773.14	98.5675	$\frac{3}{8}$	982.84	111.134
$\frac{1}{2}$	593.96	86.3938	$\frac{1}{2}$	779.31	98.9602	$\frac{1}{2}$	989.80	111.527
$\frac{5}{8}$	599.37	86.7865	$\frac{5}{8}$	785.51	99.3529	$\frac{5}{8}$	996.78	111.919
$\frac{3}{4}$	604.81	87.1792	$\frac{3}{4}$	791.73	99.7456	$\frac{3}{4}$	1003.8	112.312
$\frac{7}{8}$	610.27	87.5719	$\frac{7}{8}$	797.98	100.138	$\frac{7}{8}$	1010.8	112.705
28	615.75	87.9646	32	804.25	100.531	36	1017.9	113.097
$\frac{1}{8}$	621.26	88.3573	$\frac{1}{8}$	810.54	100.924	$\frac{1}{8}$	1025.0	113.490
$\frac{1}{4}$	626.80	88.7500	$\frac{1}{4}$	816.86	101.316	$\frac{1}{4}$	1032.1	113.883
$\frac{3}{8}$	632.36	89.1427	$\frac{3}{8}$	823.21	101.709	$\frac{3}{8}$	1039.2	114.275
$\frac{1}{2}$	637.94	89.5354	$\frac{1}{2}$	829.58	102.102	$\frac{1}{2}$	1046.3	114.668
$\frac{5}{8}$	643.55	89.9281	$\frac{5}{8}$	835.97	102.494	$\frac{5}{8}$	1053.5	115.061
$\frac{3}{4}$	649.18	90.3208	$\frac{3}{4}$	842.39	102.887	$\frac{3}{4}$	1060.7	115.454
$\frac{7}{8}$	654.84	90.7135	$\frac{7}{8}$	848.83	103.280	$\frac{7}{8}$	1068.0	115.846
29	660.52	91.1062	33	855.30	103.673	37	1075.2	116.239
$\frac{1}{8}$	666.23	91.4989	$\frac{1}{8}$	861.79	104.065	$\frac{1}{8}$	1082.5	116.632
$\frac{1}{4}$	671.96	91.8916	$\frac{1}{4}$	868.31	104.458	$\frac{1}{4}$	1089.8	117.024
$\frac{3}{8}$	677.71	92.2843	$\frac{3}{8}$	874.85	104.851	$\frac{3}{8}$	1097.1	117.417
$\frac{1}{2}$	683.49	92.6770	$\frac{1}{2}$	881.41	105.243	$\frac{1}{2}$	1104.5	117.810
$\frac{5}{8}$	689.30	93.0697	$\frac{5}{8}$	888.00	105.636	$\frac{5}{8}$	1111.8	118.202
$\frac{3}{4}$	695.13	93.4624	$\frac{3}{4}$	894.62	106.029	$\frac{3}{4}$	1119.2	118.596
$\frac{7}{8}$	700.98	93.8551	$\frac{7}{8}$	901.26	106.421	$\frac{7}{8}$	1126.7	118.988

**AREAS AND CIRCUMFERENCES OF CIRCLES  
FOR DIAMETERS IN UNITS AND FRACTIONS**

**175**

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
38	1134.1	119.381	42	1385.4	131.947	46	1661.9	144.513
$\frac{1}{8}$	1141.6	119.773	$\frac{1}{8}$	1393.7	132.340	$\frac{1}{8}$	1670.9	144.906
$\frac{1}{4}$	1149.1	120.166	$\frac{1}{4}$	1402.0	132.732	$\frac{1}{4}$	1680.0	145.299
$\frac{3}{8}$	1156.6	120.559	$\frac{3}{8}$	1410.3	133.125	$\frac{3}{8}$	1689.1	145.691
$\frac{1}{2}$	1164.2	120.951	$\frac{1}{2}$	1418.6	133.518	$\frac{1}{2}$	1698.2	146.084
$\frac{5}{8}$	1171.7	121.344	$\frac{5}{8}$	1427.0	133.910	$\frac{5}{8}$	1707.4	146.477
$\frac{3}{4}$	1179.3	121.737	$\frac{3}{4}$	1435.4	134.303	$\frac{3}{4}$	1716.5	146.869
$\frac{7}{8}$	1186.9	122.129	$\frac{7}{8}$	1443.8	134.696	$\frac{7}{8}$	1725.7	147.262
39	1194.6	122.522	43	1452.2	135.088	47	1734.9	147.655
$\frac{1}{8}$	1202.3	122.915	$\frac{1}{8}$	1460.7	135.481	$\frac{1}{8}$	1744.2	148.048
$\frac{1}{4}$	1210.0	123.308	$\frac{1}{4}$	1469.1	135.874	$\frac{1}{4}$	1753.5	148.440
$\frac{3}{8}$	1217.7	123.700	$\frac{3}{8}$	1477.6	136.267	$\frac{3}{8}$	1762.7	148.833
$\frac{1}{2}$	1225.4	124.093	$\frac{1}{2}$	1486.2	136.659	$\frac{1}{2}$	1772.1	149.226
$\frac{5}{8}$	1233.2	124.486	$\frac{5}{8}$	1494.7	137.052	$\frac{5}{8}$	1781.4	149.618
$\frac{3}{4}$	1241.0	124.878	$\frac{3}{4}$	1503.3	137.445	$\frac{3}{4}$	1790.8	150.011
$\frac{7}{8}$	1248.8	125.271	$\frac{7}{8}$	1511.9	137.837	$\frac{7}{8}$	1800.1	150.404
40	1256.6	125.664	44	1520.5	138.230	48	1809.6	150.796
$\frac{1}{8}$	1264.5	126.056	$\frac{1}{8}$	1529.2	138.623	$\frac{1}{8}$	1819.0	151.189
$\frac{1}{4}$	1272.4	126.449	$\frac{1}{4}$	1537.9	139.015	$\frac{1}{4}$	1828.5	151.582
$\frac{3}{8}$	1280.3	126.842	$\frac{3}{8}$	1546.6	139.408	$\frac{3}{8}$	1837.9	151.975
$\frac{1}{2}$	1288.2	127.235	$\frac{1}{2}$	1555.3	139.801	$\frac{1}{2}$	1847.5	152.367
$\frac{5}{8}$	1296.2	127.627	$\frac{5}{8}$	1564.0	140.194	$\frac{5}{8}$	1857.0	152.760
$\frac{3}{4}$	1304.2	128.020	$\frac{3}{4}$	1572.8	140.586	$\frac{3}{4}$	1866.5	153.153
$\frac{7}{8}$	1312.2	128.413	$\frac{7}{8}$	1581.6	140.979	$\frac{7}{8}$	1876.1	153.544
41	1320.3	128.805	45	1590.4	141.372	49	1885.7	153.938
$\frac{1}{8}$	1328.3	129.198	$\frac{1}{8}$	1599.3	141.764	$\frac{1}{8}$	1895.4	154.331
$\frac{1}{4}$	1336.4	129.591	$\frac{1}{4}$	1608.2	142.157	$\frac{1}{4}$	1905.0	154.723
$\frac{3}{8}$	1344.5	129.993	$\frac{3}{8}$	1617.0	142.550	$\frac{3}{8}$	1914.7	155.116
$\frac{1}{2}$	1352.7	130.376	$\frac{1}{2}$	1626.0	142.942	$\frac{1}{2}$	1924.2	155.509
$\frac{5}{8}$	1360.8	130.769	$\frac{5}{8}$	1634.9	143.335	$\frac{5}{8}$	1934.2	155.904
$\frac{3}{4}$	1369.0	131.161	$\frac{3}{4}$	1643.9	143.728	$\frac{3}{4}$	1943.9	156.294
$\frac{7}{8}$	1377.2	131.554	$\frac{7}{8}$	1652.9	144.121	$\frac{7}{8}$	1953.7	156.687

# AREAS AND CIRCUMFERENCES OF CIRCLES FOR DIAMETERS IN UNITS AND FRACTIONS

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
50	1963.5	157.080	54	2290.2	169.646	58	2642.1	182.212
$\frac{1}{8}$	1973.3	157.472	$\frac{1}{8}$	2300.8	170.039	$\frac{1}{8}$	2653.5	182.605
$\frac{1}{4}$	1983.2	157.865	$\frac{1}{4}$	2311.5	170.431	$\frac{1}{4}$	2664.9	182.998
$\frac{3}{8}$	1993.1	158.258	$\frac{3}{8}$	2322.1	170.824	$\frac{3}{8}$	2676.4	183.390
$\frac{1}{2}$	2003.0	158.650	$\frac{1}{2}$	2332.8	171.217	$\frac{1}{2}$	2687.8	183.783
$\frac{5}{8}$	2012.9	159.043	$\frac{5}{8}$	2343.5	171.609	$\frac{5}{8}$	2699.3	184.176
$\frac{3}{4}$	2022.8	159.436	$\frac{3}{4}$	2354.3	172.002	$\frac{3}{4}$	2710.9	184.569
$\frac{7}{8}$	2032.8	159.829	$\frac{7}{8}$	2365.0	172.395	$\frac{7}{8}$	2722.4	184.961
51	2042.8	160.221	55	2375.8	172.788	59	2734.0	185.354
$\frac{1}{8}$	2052.8	160.614	$\frac{1}{8}$	2386.6	173.180	$\frac{1}{8}$	2745.6	185.747
$\frac{1}{4}$	2062.9	161.007	$\frac{1}{4}$	2397.5	173.573	$\frac{1}{4}$	2757.2	186.139
$\frac{3}{8}$	2073.0	161.399	$\frac{3}{8}$	2408.3	173.966	$\frac{3}{8}$	2768.8	186.532
$\frac{1}{2}$	2083.1	161.792	$\frac{1}{2}$	2419.2	174.358	$\frac{1}{2}$	2780.5	186.925
$\frac{5}{8}$	2093.2	162.185	$\frac{5}{8}$	2430.1	174.751	$\frac{5}{8}$	2792.2	187.317
$\frac{3}{4}$	2103.3	162.577	$\frac{3}{4}$	2441.1	175.144	$\frac{3}{4}$	2803.9	187.710
$\frac{7}{8}$	2113.5	162.970	$\frac{7}{8}$	2452.0	175.536	$\frac{7}{8}$	2815.7	188.103
52	2123.7	163.363	56	2463.0	175.929	60	2827.4	188.496
$\frac{1}{8}$	2133.9	163.756	$\frac{1}{8}$	2474.0	176.322	$\frac{1}{8}$	2839.2	188.888
$\frac{1}{4}$	2144.2	164.148	$\frac{1}{4}$	2485.0	176.715	$\frac{1}{4}$	2851.0	189.281
$\frac{3}{8}$	2154.5	164.541	$\frac{3}{8}$	2496.1	177.107	$\frac{3}{8}$	2862.9	189.674
$\frac{1}{2}$	2164.8	164.934	$\frac{1}{2}$	2507.2	177.500	$\frac{1}{2}$	2874.8	190.066
$\frac{5}{8}$	2175.1	165.326	$\frac{5}{8}$	2518.3	177.893	$\frac{5}{8}$	2886.6	190.459
$\frac{3}{4}$	2185.4	165.719	$\frac{3}{4}$	2529.4	178.285	$\frac{3}{4}$	2898.6	190.852
$\frac{7}{8}$	2195.8	166.112	$\frac{7}{8}$	2540.6	178.678	$\frac{7}{8}$	2910.5	191.244
53	2206.2	166.504	57	2551.8	179.071	61	2922.5	191.637
$\frac{1}{8}$	2216.6	166.897	$\frac{1}{8}$	2563.0	179.463	$\frac{1}{8}$	2934.5	192.030
$\frac{1}{4}$	2227.0	167.290	$\frac{1}{4}$	2574.2	179.856	$\frac{1}{4}$	2946.5	192.423
$\frac{3}{8}$	2237.5	167.683	$\frac{3}{8}$	2585.4	180.249	$\frac{3}{8}$	2958.5	192.815
$\frac{1}{2}$	2248.0	168.075	$\frac{1}{2}$	2596.7	180.642	$\frac{1}{2}$	2970.6	193.208
$\frac{5}{8}$	2258.5	168.468	$\frac{5}{8}$	2608.0	181.034	$\frac{5}{8}$	2982.7	193.601
$\frac{3}{4}$	2269.1	168.861	$\frac{3}{4}$	2619.4	181.427	$\frac{3}{4}$	2994.8	193.993
$\frac{7}{8}$	2279.6	169.253	$\frac{7}{8}$	2630.7	181.820	$\frac{7}{8}$	3006.9	194.386

**AREAS AND CIRCUMFERENCES OF CIRCLES  
FOR DIAMETERS IN UNITS AND FRACTIONS**

177

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
62	3019.1	194.779	66	3421.2	207.345	70	3848.5	219.911
$\frac{1}{8}$	3031.3	195.171	$\frac{1}{8}$	3434.3	207.738	$\frac{1}{8}$	3862.2	220.304
$\frac{1}{4}$	3043.5	195.564	$\frac{1}{4}$	3447.2	208.131	$\frac{1}{4}$	3876.0	220.697
$\frac{3}{8}$	3055.7	195.957	$\frac{3}{8}$	3460.2	208.523	$\frac{3}{8}$	3889.8	221.090
$\frac{1}{2}$	3068.0	196.350	$\frac{1}{2}$	3473.2	208.916	$\frac{1}{2}$	3903.6	221.482
$\frac{5}{8}$	3080.3	196.742	$\frac{5}{8}$	3486.3	209.309	$\frac{5}{8}$	3917.5	221.875
$\frac{3}{4}$	3092.6	197.135	$\frac{3}{4}$	3499.4	209.701	$\frac{3}{4}$	3931.4	222.268
$\frac{7}{8}$	3104.9	197.528	$\frac{7}{8}$	3512.5	210.094	$\frac{7}{8}$	3945.3	222.660
63	3117.2	197.920	67	3525.7	210.487	71	3959.2	223.053
$\frac{1}{8}$	3129.6	198.313	$\frac{1}{8}$	3538.8	210.879	$\frac{1}{8}$	3973.1	223.446
$\frac{1}{4}$	3142.0	198.706	$\frac{1}{4}$	3552.0	211.272	$\frac{1}{4}$	3987.1	223.838
$\frac{3}{8}$	3154.5	199.098	$\frac{3}{8}$	3565.2	211.665	$\frac{3}{8}$	4001.1	224.231
$\frac{1}{2}$	3166.9	199.491	$\frac{1}{2}$	3578.5	212.058	$\frac{1}{2}$	4015.2	224.624
$\frac{5}{8}$	3179.4	199.884	$\frac{5}{8}$	3591.7	212.450	$\frac{5}{8}$	4029.2	225.017
$\frac{3}{4}$	3191.9	200.277	$\frac{3}{4}$	3605.0	212.843	$\frac{3}{4}$	4043.3	225.409
$\frac{7}{8}$	3204.4	200.669	$\frac{7}{8}$	3618.3	213.236	$\frac{7}{8}$	4057.4	225.802
64	3217.0	201.062	68	3631.7	213.628	72	4071.5	226.195
$\frac{1}{8}$	3229.6	201.455	$\frac{1}{8}$	3645.0	214.021	$\frac{1}{8}$	4085.7	226.587
$\frac{1}{4}$	3242.2	201.847	$\frac{1}{4}$	3658.4	214.414	$\frac{1}{4}$	4099.8	226.930
$\frac{3}{8}$	3254.8	202.240	$\frac{3}{8}$	3671.8	214.806	$\frac{3}{8}$	4114.0	227.373
$\frac{1}{2}$	3267.5	202.633	$\frac{1}{2}$	3685.3	215.199	$\frac{1}{2}$	4128.2	227.765
$\frac{5}{8}$	3280.1	203.025	$\frac{5}{8}$	3698.7	215.592	$\frac{5}{8}$	4142.5	228.158
$\frac{3}{4}$	3292.8	203.418	$\frac{3}{4}$	3712.2	215.984	$\frac{3}{4}$	4156.8	228.551
$\frac{7}{8}$	3305.6	203.811	$\frac{7}{8}$	3725.7	216.377	$\frac{7}{8}$	4171.1	228.944
65	3318.3	204.204	69	3739.3	216.770	73	4185.4	229.336
$\frac{1}{8}$	3331.1	204.596	$\frac{1}{8}$	3752.8	217.163	$\frac{1}{8}$	4199.7	229.729
$\frac{1}{4}$	3343.9	204.989	$\frac{1}{4}$	3766.4	217.555	$\frac{1}{4}$	4214.1	230.122
$\frac{3}{8}$	3356.7	205.382	$\frac{3}{8}$	3780.0	217.948	$\frac{3}{8}$	4228.5	230.514
$\frac{1}{2}$	3369.6	205.774	$\frac{1}{2}$	3793.7	218.341	$\frac{1}{2}$	4242.9	230.907
$\frac{5}{8}$	3382.4	206.167	$\frac{5}{8}$	3807.3	218.733	$\frac{5}{8}$	4257.4	231.300
$\frac{3}{4}$	3395.3	206.560	$\frac{3}{4}$	3821.0	219.120	$\frac{3}{4}$	4271.8	231.692
$\frac{7}{8}$	3408.2	206.952	$\frac{7}{8}$	3834.7	219.519	$\frac{7}{8}$	4286.3	232.085



# AREAS AND CIRCUMFERENCES OF CIRCLES FOR DIAMETERS IN UNITS AND FRACTIONS

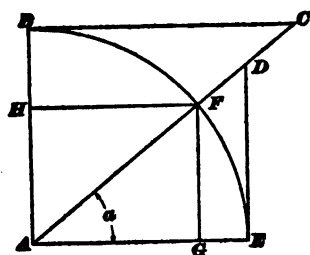
Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
74	4300.8	232.478	78	4778.4	245.044	82	5281.0	257.611
$\frac{1}{8}$	4315.4	232.871	$\frac{1}{8}$	4793.7	245.437	$\frac{1}{8}$	5297.1	258.003
$\frac{1}{4}$	4329.9	233.263	$\frac{1}{4}$	4809.0	245.830	$\frac{1}{4}$	5313.3	258.396
$\frac{3}{8}$	4344.5	233.656	$\frac{3}{8}$	4824.4	246.222	$\frac{3}{8}$	5329.4	258.789
$\frac{1}{2}$	4359.2	234.049	$\frac{1}{2}$	4839.8	246.615	$\frac{1}{2}$	5345.6	259.181
$\frac{5}{8}$	4373.8	234.441	$\frac{5}{8}$	4855.2	247.008	$\frac{5}{8}$	5361.8	259.574
$\frac{3}{4}$	4388.5	234.334	$\frac{3}{4}$	4870.7	247.400	$\frac{3}{4}$	5378.1	259.967
$\frac{7}{8}$	4403.1	235.227	$\frac{7}{8}$	4886.2	247.793	$\frac{7}{8}$	5394.3	260.359
75	4417.9	235.619	79	4901.7	248.186	83	5410.6	260.752
$\frac{1}{8}$	4432.6	236.012	$\frac{1}{8}$	4917.2	248.579	$\frac{1}{8}$	5426.9	261.145
$\frac{1}{4}$	4447.4	236.405	$\frac{1}{4}$	4932.7	248.971	$\frac{1}{4}$	5443.3	261.538
$\frac{3}{8}$	4462.2	236.798	$\frac{3}{8}$	4948.3	249.364	$\frac{3}{8}$	5459.6	261.930
$\frac{1}{2}$	4477.0	237.190	$\frac{1}{2}$	4963.9	249.757	$\frac{1}{2}$	5476.0	262.323
$\frac{5}{8}$	4491.8	237.583	$\frac{5}{8}$	4979.5	250.149	$\frac{5}{8}$	5492.4	262.716
$\frac{3}{4}$	4506.7	237.976	$\frac{3}{4}$	4995.2	250.542	$\frac{3}{4}$	5508.8	263.103
$\frac{7}{8}$	4521.5	238.368	$\frac{7}{8}$	5010.9	250.935	$\frac{7}{8}$	5525.3	263.501
76	4536.5	238.761	80	5026.5	251.327	84	5541.8	263.894
$\frac{1}{8}$	4551.4	239.154	$\frac{1}{8}$	5042.3	251.720	$\frac{1}{8}$	5558.3	264.286
$\frac{1}{4}$	4566.4	239.546	$\frac{1}{4}$	5058.0	252.113	$\frac{1}{4}$	5574.8	264.679
$\frac{3}{8}$	4581.3	239.939	$\frac{3}{8}$	5073.8	252.506	$\frac{3}{8}$	5591.4	265.072
$\frac{1}{2}$	4596.3	240.332	$\frac{1}{2}$	5089.6	252.898	$\frac{1}{2}$	5607.9	265.465
$\frac{5}{8}$	4611.4	240.725	$\frac{5}{8}$	5105.4	253.291	$\frac{5}{8}$	5624.5	265.857
$\frac{3}{4}$	4626.4	241.117	$\frac{3}{4}$	5121.2	253.684	$\frac{3}{4}$	5641.2	266.250
$\frac{7}{8}$	4641.5	241.510	$\frac{7}{8}$	5137.1	254.076	$\frac{7}{8}$	5657.8	266.643
77	4656.6	241.903	81	5153.0	254.469	85	5674.5	267.035
$\frac{1}{8}$	4671.8	242.295	$\frac{1}{8}$	5168.9	254.862	$\frac{1}{8}$	5691.2	267.428
$\frac{1}{4}$	4686.9	242.688	$\frac{1}{4}$	5184.9	255.254	$\frac{1}{4}$	5707.9	267.821
$\frac{3}{8}$	4702.1	243.081	$\frac{3}{8}$	5200.8	255.647	$\frac{3}{8}$	5724.7	268.213
$\frac{1}{2}$	4717.3	243.473	$\frac{1}{2}$	5216.8	256.040	$\frac{1}{2}$	5741.5	268.606
$\frac{5}{8}$	4732.5	243.866	$\frac{5}{8}$	5232.8	256.433	$\frac{5}{8}$	5758.3	268.999
$\frac{3}{4}$	4747.8	244.259	$\frac{3}{4}$	5248.9	256.825	$\frac{3}{4}$	5775.1	269.392
$\frac{7}{8}$	4763.1	244.652	$\frac{7}{8}$	5264.9	257.218	$\frac{7}{8}$	5791.9	269.784

**AREAS AND CIRCUMFERENCES OF CIRCLES  
FOR DIAMETERS IN UNITS AND FRACTIONS**

**179**

Dia.	Area	Circum.	Dia.	Area	Circum.	Dia.	Area	Circum.
86	5808.8	270.177	90	6361.7	282.743	94	6939.8	295.310
$\frac{1}{8}$	5825.7	270.570	$\frac{1}{8}$	6379.4	283.136	$\frac{1}{8}$	6958.2	295.702
$\frac{1}{4}$	5842.6	270.962	$\frac{1}{4}$	6397.1	283.529	$\frac{1}{4}$	6976.7	296.095
$\frac{3}{8}$	5859.6	271.355	$\frac{3}{8}$	6414.9	283.921	$\frac{3}{8}$	6995.3	296.488
$\frac{1}{2}$	5876.5	271.748	$\frac{1}{2}$	6432.6	284.314	$\frac{1}{2}$	7013.8	296.881
$\frac{5}{8}$	5893.5	272.140	$\frac{5}{8}$	6450.4	284.707	$\frac{5}{8}$	7032.4	297.273
$\frac{3}{4}$	5910.6	272.533	$\frac{3}{4}$	6468.2	285.100	$\frac{3}{4}$	7051.0	297.666
$\frac{7}{8}$	5927.6	272.926	$\frac{7}{8}$	6486.0	285.492	$\frac{7}{8}$	7069.6	298.059
87	5944.7	273.319	91	6503.9	285.885	95	7088.2	298.451
$\frac{1}{8}$	5961.8	273.711	$\frac{1}{8}$	6521.8	286.278	$\frac{1}{8}$	7106.9	298.844
$\frac{1}{4}$	5978.9	274.104	$\frac{1}{4}$	6539.7	286.670	$\frac{1}{4}$	7125.6	299.237
$\frac{3}{8}$	5996.0	274.497	$\frac{3}{8}$	6557.6	287.063	$\frac{3}{8}$	7144.3	299.629
$\frac{1}{2}$	6013.2	274.889	$\frac{1}{2}$	6575.5	287.456	$\frac{1}{2}$	7163.0	300.022
$\frac{5}{8}$	6030.4	275.282	$\frac{5}{8}$	6593.5	287.848	$\frac{5}{8}$	7181.8	300.415
$\frac{3}{4}$	6047.6	275.675	$\frac{3}{4}$	6611.5	288.241	$\frac{3}{4}$	7200.6	300.807
$\frac{7}{8}$	6064.9	276.067	$\frac{7}{8}$	6629.6	288.634	$\frac{7}{8}$	7219.4	301.200
88	6082.1	276.460	92	6647.6	289.027	96	7238.2	301.593
$\frac{1}{8}$	6099.4	276.853	$\frac{1}{8}$	6665.7	289.419	$\frac{1}{8}$	7276.0	302.378
$\frac{1}{4}$	6256.7	277.846	$\frac{1}{4}$	6683.8	289.812	$\frac{1}{4}$	7313.8	303.164
$\frac{3}{8}$	6134.1	277.638	$\frac{3}{8}$	6701.9	290.205	$\frac{3}{8}$	7351.8	303.949
$\frac{1}{2}$	6151.4	278.031	$\frac{1}{2}$	6720.1	290.597	97	7389.8	304.734
$\frac{5}{8}$	6168.8	278.424	$\frac{5}{8}$	6738.2	290.990	$\frac{1}{4}$	7428.0	305.520
$\frac{3}{4}$	6186.2	278.816	$\frac{3}{4}$	6756.4	291.383	$\frac{1}{2}$	7466.2	306.305
$\frac{7}{8}$	6203.7	279.209	$\frac{7}{8}$	6774.7	291.775	$\frac{3}{4}$	7504.5	307.091
89	6221.1	279.602	93	6792.9	292.168	98	7543.0	307.876
$\frac{1}{8}$	6238.6	279.994	$\frac{1}{8}$	6811.2	292.561	$\frac{1}{8}$	7581.5	308.661
$\frac{1}{4}$	6256.1	280.387	$\frac{1}{4}$	6829.5	292.954	$\frac{1}{4}$	7620.1	309.447
$\frac{3}{8}$	6273.7	280.780	$\frac{3}{8}$	6847.8	293.346	$\frac{1}{2}$	7658.9	310.232
$\frac{1}{2}$	6291.2	281.173	$\frac{1}{2}$	6866.1	293.739	99	7697.7	311.018
$\frac{5}{8}$	6308.8	281.565	$\frac{5}{8}$	6884.5	294.132	$\frac{1}{4}$	7736.6	311.803
$\frac{3}{4}$	6326.4	281.958	$\frac{3}{4}$	6902.9	294.524	$\frac{1}{2}$	7775.6	312.588
$\frac{7}{8}$	6344.1	282.351	$\frac{7}{8}$	6921.3	294.917	$\frac{3}{4}$	7814.8	313.374

# FORMULAS.



For Radius,  $AE=1$

$$FG = \sin a \quad AG = \cos a$$

$$DE = \tan a \quad BC = \cot a$$

$$AD = \sec a \quad AC = \csc a$$

$$GE = \text{vers } a$$

$$BH = \text{covers } a$$

$$\sin^2 a + \cos^2 a = 1$$

$$\sec^2 a = 1 + \tan^2 a$$

$$\csc^2 a = 1 + \cot^2 a$$

$$\tan a = \frac{\sin a}{\cos a}$$

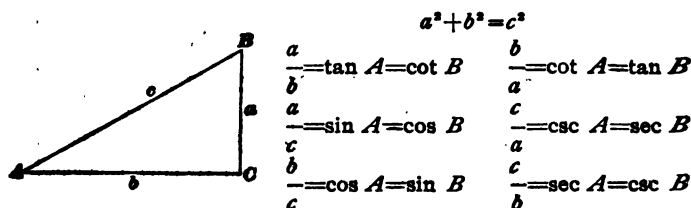
$$\cot a = \frac{\cos a}{\sin a}$$

$$\text{vers } a = 1 - \cos a$$

$$\text{covers } a = 1 - \sin a$$

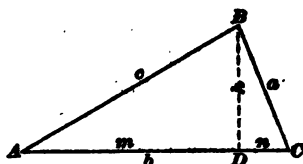
$\sin a$		$\sqrt{1 - \cos^2 a}$	$\frac{\tan a}{\sqrt{1 + \tan^2 a}}$	$\frac{1}{\sqrt{1 + \cot^2 a}}$
$\cos a$	$\sqrt{1 - \sin^2 a}$		$\frac{1}{\sqrt{1 + \tan^2 a}}$	$\frac{\cot a}{\sqrt{1 + \cot^2 a}}$
$\tan a$	$\frac{\sin a}{\sqrt{1 - \sin^2 a}}$	$\frac{\sqrt{1 - \cos^2 a}}{\cos a}$		$\frac{1}{\cot a}$
$\cot a$	$\frac{\sqrt{1 - \sin^2 a}}{\sin a}$	$\frac{\cos a}{\sqrt{1 - \cos^2 a}}$	$\frac{1}{\tan a}$	

# RIGHT TRIANGLE.



# OBLIQUE-ANGLED TRIANGLE.

Notation:  $AB=c$   $BC=a$   
 $AC=b$   $BD=h$   
 $AD=m$   $DC=n$



Given	Required	FORMULAS
$A, B, a$	$C, b, c$	$A+B+C=180^\circ$ ; $b = \frac{a \sin B}{\sin A}$ ; $c = \frac{a \sin C}{\sin A}$
$b, c, A$	$B, C, a$	$\begin{cases} \tan \frac{1}{2}(B-C) = \tan \frac{1}{2}(B+C) \times \frac{b-c}{b+c}; \\ a^2 = b^2 + c^2 - 2bc \cos A; \text{ or } h = c \sin A; \\ m = c \cos A; n = b - m; a^2 = h^2 + n^2 \end{cases}$
$a, c, A$	$C, B, b$	$\sin C = \sin A \times \frac{c}{a}$ ; $B = 180^\circ - (A+C)$ ; $b = a \times \frac{\sin B}{\sin A}$ NOTE—Two values for $C$ , $B$ , and $b$ are possible.
$a, b, c$	$A$	$\begin{cases} \sin \frac{A}{2} = \sqrt{\frac{(s-b)(s-c)}{b \times c}} \\ \cos \frac{A}{2} = \sqrt{\frac{s(s-a)}{b \times c}}; \text{ in which } s = \frac{1}{2}(a+b+c) \\ \tan \frac{A}{2} = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}} \end{cases}$
$a, b, c$	$m, n$	$m = \frac{c^2 + b^2 - a^2}{2b}$ ; $n = \frac{a^2 + b^2 - c^2}{2b}$

# DECIMAL EQUIVALENTS.

Fractions of an inch.	DECIMALS OF A FOOT.							Fractions of an inch.
	0"	1"	2"	3"	4"	5"	6"	
0	.0000	.0833	.1667	.2500	.3333	.4167	.5000	0
$\frac{1}{16}$	.0026	.0859	.1693	.2526	.3359	.4193	.5026	$\frac{1}{16}$
$\frac{1}{8}$	.0052	.0885	.1719	.2552	.3385	.4219	.5052	$\frac{1}{8}$
$\frac{3}{16}$	.0078	.0911	.1745	.2578	.3411	.4245	.5078	$\frac{3}{16}$
$\frac{1}{4}$	.0104	.0938	.1771	.2604	.3438	.4271	.5104	$\frac{1}{4}$
$\frac{5}{16}$	.0130	.0964	.1797	.2630	.3464	.4297	.5130	$\frac{5}{16}$
$\frac{3}{8}$	.0156	.0990	.1823	.2656	.3490	.4323	.5156	$\frac{3}{8}$
$\frac{7}{16}$	.0182	.1016	.1849	.2682	.3516	.4349	.5182	$\frac{7}{16}$
$\frac{1}{2}$	.0208	.1042	.1875	.2708	.3542	.4375	.5208	$\frac{1}{2}$
$\frac{9}{16}$	.0234	.1068	.1901	.2734	.3568	.4401	.5234	$\frac{9}{16}$
$\frac{5}{8}$	.0260	.1094	.1927	.2760	.3594	.4427	.5260	$\frac{5}{8}$
$\frac{11}{16}$	.0286	.1120	.1953	.2786	.3620	.4453	.5286	$\frac{11}{16}$
$\frac{3}{4}$	.0313	.1146	.1979	.2813	.3646	.4479	.5313	$\frac{3}{4}$
$\frac{13}{16}$	.0339	.1172	.2005	.2839	.3672	.4505	.5339	$\frac{13}{16}$
$\frac{7}{8}$	.0365	.1198	.2031	.2865	.3698	.4531	.5365	$\frac{7}{8}$
$\frac{15}{16}$	.0391	.1224	.2057	.2891	.3724	.4557	.5391	$\frac{15}{16}$
$\frac{1}{8}$	.0417	.1250	.2083	.2917	.3750	.4583	.5417	$\frac{1}{8}$
$\frac{17}{16}$	.0443	.1276	.2109	.2943	.3776	.4609	.5443	$\frac{17}{16}$
$\frac{9}{8}$	.0469	.1302	.2135	.2969	.3802	.4635	.5469	$\frac{9}{8}$
$\frac{19}{16}$	.0495	.1328	.2161	.2995	.3828	.4661	.5495	$\frac{19}{16}$
$\frac{5}{4}$	.0521	.1354	.2188	.3021	.3854	.4688	.5521	$\frac{5}{4}$
$\frac{21}{16}$	.0547	.1380	.2214	.3047	.3880	.4714	.5547	$\frac{21}{16}$
$\frac{11}{8}$	.0573	.1406	.2240	.3073	.3906	.4740	.5573	$\frac{11}{8}$
$\frac{23}{16}$	.0599	.1432	.2266	.3099	.3932	.4766	.5599	$\frac{23}{16}$
$\frac{3}{2}$	.0625	.1458	.2292	.3125	.3958	.4792	.5625	$\frac{3}{2}$
$\frac{25}{16}$	.0651	.1484	.2318	.3151	.3984	.4818	.5651	$\frac{25}{16}$
$\frac{13}{8}$	.0677	.1510	.2344	.3177	.4010	.4844	.5677	$\frac{13}{8}$
$\frac{27}{16}$	.0703	.1536	.2370	.3203	.4036	.4870	.5703	$\frac{27}{16}$
$\frac{7}{4}$	.0729	.1563	.2396	.3229	.4063	.4896	.5729	$\frac{7}{4}$
$\frac{29}{16}$	.0755	.1589	.2422	.3255	.4089	.4922	.5755	$\frac{29}{16}$
$\frac{15}{8}$	.0781	.1615	.2448	.3281	.4115	.4948	.5781	$\frac{15}{8}$
$\frac{31}{16}$	.0807	.1641	.2474	.3307	.4141	.4974	.5807	$\frac{31}{16}$
1	.0833	.1667	.2500	.3333	.4167	.5000	.5833	1

